

UNIVERSITY OF LONDON
INSTITUTE OF ARCHAEOLOGY

SECOND
ANNUAL REPORT
1938

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1939

27 MAR 39

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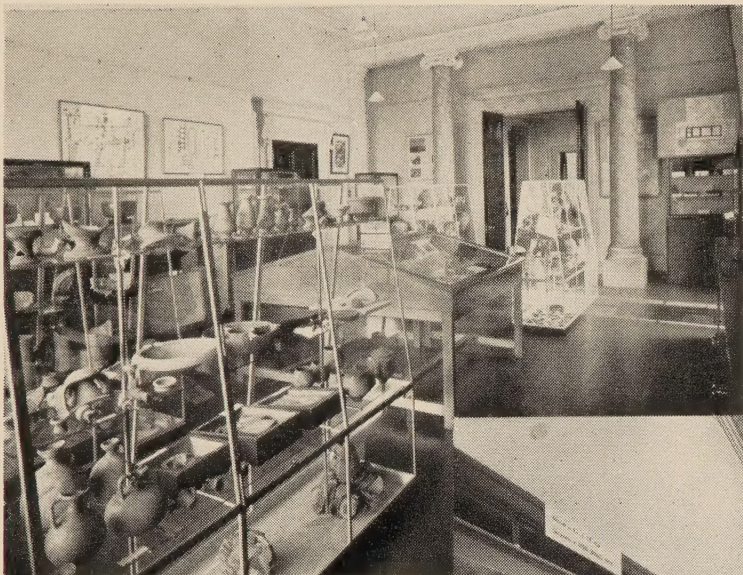
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EXHIBITION OF RECENT ARCHAEOLOGICAL DISCOVERIES
HELD AT THE INSTITUTE, MARCH-MAY, 1938

Introductory Note

THE second year's work of the Institute of Archaeology has shown that the general lines of policy laid down at the outset conform with the needs of a considerable body of students. That policy was based primarily upon the development of archaeology as an applied science and was thus able from the outset, even with the inadequate endowment at present available, to meet the requirements of students in a number of different fields of work. The British Isles, Palestine, and Cyprus have all received attention in relation to their own special needs; but above all, it has been possible to give students engaged in field-work, alike in these and in other regions, the more general elements of practical training—in the principles of excavation and the preservation of objects—which are common to them all. Moreover, an increasing use of the Institute has been made by expeditions working in Great Britain, Palestine, Transjordan, Egypt, and Cyprus for purposes of research into newly excavated material, and for the preparation of monographs and reports. And both for these and for the specialist training of students the Mond Photographic Laboratory has been working to capacity. Furthermore, exhibitions of new archaeological material from the British Isles and from Egypt have been held in the Institute during the year and have been extensively visited both by students and by the general public.

A prominent place must also be assigned to the teaching and research carried out in the Department of Geochronology under the direction of Dr. F. E. Zeuner. Dr. Zeuner's work is essentially a pioneer-attempt in this country to correlate a number of different branches of science in relation to the study of Man, and its importance, both actual and potential, would be difficult to overestimate. Here again, however, further endowment is urgently required.

Pending more ample financial provision much of the work of the Institute has necessarily been sustained on an honorary basis, and in this connection special mention should here be made of the assistance which Professor Sidney Smith, of the British Museum, has given to the development of Near Eastern studies at the Institute. Professor S. H. Hooke has likewise assisted in these studies and now has

INTRODUCTORY NOTE

permanent quarters in the building. On the administrative side, the task of cataloguing the growing library has been undertaken by Lt.-Col. B. S. Browne, F.S.A., and other tasks of classification and indexing have been carried out by Miss Margot Eates, B.A., who also assisted with the secretarial work. Mr. A. G. Bell likewise gave much help in the arranging and cataloguing of the collections. Further services rendered are mentioned in the course of the accompanying report, and here it is only necessary to mention that important public lectures were given of which two are here printed in full (pp. 29 and 46).

A special reference is due to the constant help which, from its initiation, the Institute received from the late Sir Robert Mond, whose death, shortly after the period covered by this report, has robbed the Institute not merely of a generous benefactor, but also of an interested and constantly helpful adviser.

Finally, a recurring theme of this report is the imperative necessity of increasing the endowment of the Institute both for the maintenance of its building, equipment, and collections, and in respect of its staff. Sir Charles Marston, Sir Percival David, and others have helped liberally in these matters during the year, but a considerable further advance is urgently desirable during the forthcoming session. It is appropriate therefore to open this report of work done with an earnest appeal for the funds necessary for much work yet to do.

Report on Routine Work, Session 1937-8

THE Institute has now completed its second year of work. Its various departments and activities have taken shape, and its lines of development are becoming clear. The first years of an institution which is essentially a new departure must necessarily be experimental, but it is satisfactory that those departments in which a beginning has been made have without exception proved to meet a real need. They have all been extended considerably in the past session, and the year's working has shown that not only must this process continue, but a beginning should now be made in yet further directions. The activities of the Institute may be classified as instruction in technical aspects of archaeology, the execution of technical work for archaeological bodies, academic work, the supplying of facilities for research, and lectures and exhibitions. The year's work will be dealt with in that order.

A. TECHNICAL TRAINING

This has been placed at the head of the list, for in this the Institute is to a large extent doing pioneer work. Most archaeologists to-day have acquired their training in a somewhat haphazard way, often by a rather painful experience of how not to do things; they have generally learnt by experiment, in which the subject of the experiment, whether a site or a particular find, has naturally suffered. Alternatively, directors of excavations and others have had to spend much of their time, already all too fully employed, in giving elementary instruction to students. It is the aim of the Institute to provide students with a thorough grounding in technical methods, though it will, of course, always be necessary to supplement this by experience. Eighty-four students have taken one or more of the technical courses in the past year, some in connection with work for the various University diplomas, whilst others had already had considerable experience in various fields but were anxious to take courses not before available.

A very large number of students are nowadays anxious to take part in excavations, either as a full-time or a part-time occupation.

REPORT ON ROUTINE WORK, 1937-8

A course of lectures was given this year, the first arranged specifically for this object, to give a grounding in actual methods of excavation in the field. These dealt with different types of sites likely to be encountered both in this country and abroad. All aspects of the work, both method of attack and the principles of recording results, preparing plans, sections, notes, and photographs, were covered. Other lectures dealt with more specialized branches, some connected with technology, with which students might come into contact. A full list of the lectures is given below (pp. 16 ff).

It is essential for students to have a grounding in other aspects of practical archaeology, such as photography and the drawing and treatment of objects, even if they are not going to specialize in them. Instruction in these subjects has been given to a considerable number of students, both those with general interests, and those desiring specialist training. The photographic department, which was opened in August 1937, has already given instruction to almost as many students as it was possible to deal with, either by way of private tuition or in small classes. A number of these students have, as a result, helped with photography on excavations during the summer. The classes in Archaeological Draftsmanship and in the Repair and Treatment of Archaeological Objects, both of which were in operation in the previous year, were repeated and were well attended.

An important branch of the Institute's activities is the organization of field-work for students. A large number of inquiries were received from persons anxious to work on excavations of various sorts, and this was arranged in all suitable cases. The excavations to which students were sent were mainly those under the supervision of members of the staff or senior students of the Institute, but other archaeologists are co-operating in this matter, and it is hoped that this will increasingly be the case.

B. TECHNICAL SERVICES

The technical staffs of most museums are so fully occupied with work on their own material that their services are not available to outside bodies. The need for some institution ready to undertake work of this sort has long been felt, and it is the aim of the Institute to fill the need. The greatest amount of work done has been in the Repair Laboratory. The repair and restoration of pottery of all periods from neolithic to mediaeval has been carried

REPORT ON ROUTINE WORK, 1937-8

out both for museums and for individuals. The more elaborate chemical processes are not attempted, but much cleaning of metal and bone objects has been successfully carried out. The objects treated ranged from minute bronze ear-rings to ten-foot lengths of wooden drain-pipes, requiring six men to lift them. The making of archaeological models is a side of the work which has been considerably extended this year. Work carried out included models illustrating the dwellings and activities of man from prehistoric to mediaeval times, which were prepared to the order of a provincial museum for use in schools.

The need for specialized archaeological photographers is apparent to all who have had experience in the field; there is much to be learnt in the technique of making an accurate record, as opposed to an artistic picture, even by the best non-specialized professional photographers. Through the generosity of the late Sir Robert Mond, the Institute was, in August 1937, able to equip a photographic laboratory and to secure the services of a photographer with long experience in archaeological field-work. The primary object in establishing the department is to render good specialized work available generally to archaeologists, and not to make a profit; the prices are, therefore, kept as low as possible. The department can now undertake archaeological photography of all sorts, whether in the field, in the studio, or in museums. Much work of these various kinds has been carried out during the year. The entire field-photography of numerous excavations was undertaken, and a continuous stream of orders for photographs of objects, lantern slides, etc., has kept the photographer working to capacity throughout the winter.

There is a further need which the Institute is endeavouring to meet: the supplying of draftsmen for the drawing of archaeological objects of all sorts, especially pottery. A number of the more promising students who have taken the Draftsmanship course are therefore being allotted work at the Institute in order to give them experience. Until they are fully qualified their drawings are checked by the Institute's instructor, in order to ensure a high standard of work. Though this department is of even more recent formation than the photographic, considerable use is already being made of it.

In addition to these technical services, the Geochronological Department has carried out much work, and answered many queries. These activities are described elsewhere.

REPORT ON ROUTINE WORK, 1937-8

C. ACADEMIC WORK, TEACHING COLLECTIONS, LIBRARY

The Institute does not aim at giving academic instruction in all branches of archaeology, as provision for the teaching of some of these already exists in other portions of the University. Its ultimate object is to provide teaching in all branches of the subject for which there is no such provision and for which there is a demand. The principal need at the present time is in Near-Eastern Archaeology, and the establishment of the teaching of this subject is amongst the first aims of the Institute. Courses for the University diploma for both Syrian and Palestinian Archaeology are now available and, though the number of students is at present small, the number of inquiries received shows that there is a very real demand in this direction.

In addition to the provision of instruction in the more historical side of the subject, efforts are being made to train students by the actual handling of archaeological material. In Palestinian archaeology, the Petrie collection, which formed the original nucleus of the department, has in the course of the year been supplemented by useful material, mainly of earlier and later periods. An excellent type-collection from various sites of the Chalcolithic and Early Bronze Ages, has been given by the Palestine Museum, Jerusalem. Professor John Garstang has given a small collection of early sherds from Jericho, covering the same periods. The section of the Early Iron Age has been supplemented by pottery, given by the Wellcome-Marston Expedition, from Tell Duweir, of the period just before the destruction of the city in 588 B.C., which was a period not well represented in the Petrie collection. An interesting collection of Nabataean and Sigillata sherds from South Palestine has been deposited in the Institute by the Colt Archaeological Expedition, and some considerably later material, mainly Arab, has also been deposited by Mr. Oliver Myers.

It is not, however, the intention of the Near Eastern Department to confine itself to Palestine. As the result of the generosity of Sir Percival David, who made a contribution through the University to Sir Leonard Woolley's excavations, an excellent collection of pottery from Atchana in Northern Syria is now at the Institute. The connections of this site with the Mediterranean, particularly Cyprus, with Northern Syria and the Habur, and also with Southern Syria, make it particularly valuable. Professor Garstang has given a series of sherds from his early excavations at Sakje Geuze in Cilicia, from layers dating from the Early Bronze Age down to the period of the Hittites. A good collection of Cypriot pottery also is

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now available, derived partly from purchases and partly from a gift from Mr. E. S. M. Perowne. This includes a small amount of the Early Cypriot period and a considerable amount of Middle and Late Cypriot, down to the Hellenistic period. A small collection of Cretan sherds has been deposited at the Institute by Miss O. Tufnell.

Though British Archaeology does not take the first place in the syllabus of the Institute, the teaching collections in this department, too, are of importance to students, for, though the principal diplomas have been for some time past taught in other University institutions, classified collections illustrating the various periods have not previously been available. The periods best represented are the Iron Age and Roman. In the course of the last year, much of the material from Maiden Castle has been made available in the Iron Age series while for the Roman period the Verulamium collection has been supplemented by groups of stratified sherds from Leicester and Wroxeter.

It will thus be seen that the scope of the collections of the Institute is gradually being enlarged. Their usefulness is also growing as the work of cataloguing proceeds though much work remains to be done. Meanwhile, the material is all systematically arranged, and readily accessible to students and members of the Institute. The method of arrangement is described in the First Annual Report.

A good reference library is, of course, essential to the Institute. As described in the last Report, a useful nucleus was formed by gifts from various sources. This is gradually being supplemented both by gifts and by purchases. The most important gift during the year was that from the Trustees of the British Museum of all their publications which were needed by the Institute. Miss Joan Evans gave a valuable series of the *Quarterlies* of the Palestine Exploration Fund, from the library of Sir John Evans. Numerous other smaller gifts have been received, and a number of archaeologists have given, or promised, off-prints of their publications, which are much appreciated. Purchases have been mainly confined to important standard works, since only a small sum can at present be allocated to the library per annum.

D. FACILITIES FOR RESEARCH WORK

The need of accommodation for senior archaeologists and particularly for field-workers was one of the primary reasons for the foundation of the Institute. During the year under review all the

REPORT ON ROUTINE WORK, 1937-8

available rooms at the Institute were occupied, and in fact the demand exceeded the supply. The quarters of the Wellcome-Marston Expedition to the Near East were extended by the addition of three new store-rooms. Sir Robert Mond's expedition to Egypt had temporary quarters during the summer, as did also the Colt Archaeological Expedition to South Palestine. The British expeditions provided with accommodation were Maiden Castle, Leicester, Wroxeter, Angmering, Engleton, and Verulamium. Most of these had storage room as well as one or more workrooms.

Much research was carried out in connection with these various expeditions, and a number of students were given different sections of the finds upon which to work. Senior students were likewise engaged in research in the Near Eastern Department, largely on material in the collections of the Institute. Though the library of the Institute does not yet, of course, provide all the material necessary for research, it contains many of the more important works and arrangements for obtaining others can be made through the National Central Library.

LECTURES AND EXHIBITIONS

In addition to the technical lectures described above, and to those of the Geochronological Department, referred to elsewhere in this report, a number of lectures were designed for the dual need of students and the general public. The majority of these were concerned with recent excavations, both in Great Britain and in the Near East. In most cases they dealt with work only just completed or still in progress; they were not intended to take the place of the more mature reports which are ordinarily presented to the various learned bodies at a later date, but were designed to enable students and the interested public to keep in touch with the most recent events. Besides these, regional surveys of recent work were given, and the opportunity was taken of indicating needs of future work. Two of the lectures are published in this report.

The first special exhibitions were held at the Institute in the course of the year. In August and September, the lecture room was lent to the Egypt Exploration Society, Sir Robert Mond's Expedition, for an exhibition of finds from Armant and elsewhere. In the spring a large exhibition was arranged by the Institute to illustrate finds of the last five years in British Archaeology. Excavators and museums throughout Great Britain and Northern Ireland were most

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generous in lending their best material, and the result was a representative exhibition ranging from the earliest Palaeolithic to the Middle Ages. A brief list of the exhibits is given elsewhere. Admission was by purchase of the catalogue (price 1/-) which contained a brief summary of the excavations illustrated. A limited number of copies of this catalogue, which thus contains a useful description of recent archaeology, are still available. The exhibition was extremely well attended, about a thousand people visiting it in the course of the two months during which it was open. Included in the exhibits were a number of photographs, partly illustrating the work of the Institute's Department, and partly Air Photographs lent by Major G. W. G. Allen and others. Following the close of the exhibition, a further exhibition of Air Photographs was given, for which an aerial camera was kindly lent by the Williamson Manufacturing Company (Eagle Aircraft Cameras).

List of Lectures Held During the Session 1937-8

FIRST TERM

Archaeological Draftsmanship.—A course of six lectures with demonstrations, by Mr. G. C. Dunning, F.S.A. Fee £1 1s. od.

An Introduction to Geochronology.—A course of four public lectures, by Dr. F. E. Zeuner, Honorary Lecturer in Geochronology.

Recent Archaeological Field Work in Great Britain.—A course of six public lectures.

1. *Current Work in British Archaeology, a Survey of Aims and Needs*, by Mr. C. F. C. Hawkes, F.S.A.
2. *King Arthur's Round Table, Westmorland*, by Professor R. G. Collingwood, F.B.A., V.P.S.A.
3. *Recent Excavations on Roman Sites at Leicester and Wroxeter*, by Miss K. M. Kenyon, F.S.A.
4. *Recent Work in the Somerset Lake Villages*, by Mr. H. St. George Gray, F.S.A.
5. *Recent Work on Some Cotswold Barrows*, by Mrs. Elsie Clifford.
6. *The Outpost Forts of Hadrian's Wall*, by Mr. Ian Richmond, F.S.A.

SECOND TERM

Demonstration of Geochronological Methods.—A course of four public lecture-demonstrations, by Dr. F. E. Zeuner.

The Ancient East in the Light of New Inscriptions.—A course of four public lectures, by Mr. Theodor Gaster.

SECOND AND THIRD TERMS

The Principles and Technique of Field Archaeology. Fee £2 12s. 6d.

1. *General Principles : Buildings*, by Dr. R. E. M. Wheeler, V.P.S.A.

LECTURES HELD DURING 1937-8

2. *Earthworks*, by Dr. R. E. M. Wheeler.
3. *Records and Reports*, by Miss K. M. Kenyon, F.S.A.
4. *Principles of the Identification and Significance of Coins in Field Work*, by Mr. B. H. St. J. O'Neil, F.S.A.
5. *Air Photography in Archaeology*, by Major G. W. G. Allen, F.S.A.
6. *Forest History and its relevance to Archaeological Studies*.
(1) *General Principles*, by Dr. J. G. D. Clark, F.S.A.
7. *Forest History*. (2) *Application and Results*, by Dr. J. G. D. Clark.
8. *The Excavation of Caves*, by Mr. Leslie Armstrong, F.S.A.
9. *Maps and Physiography*, by Sir Cyril Fox, F.S.A.
10. *Animal Bones*, by Dr. Wilfred Jackson.
11. *The Surveying of an Archaeological Site*, by Mr. Huntly Gordon, F.S.A.
12. *The Surveying of an Archaeological Site* (continued), by Mrs. H. O'N. Hencken.
13. *The Use of Samian Pottery in Roman Excavations*, by Dr. T. Davies Pryce, F.S.A.
14. *Primitive Techniques of Pottery Making*, by Mrs. J. W. Crowfoot.
15. *Treatment of Objects in the Field*, by Miss I. Gedye.
16. *Excavation Methods and Organization in the Near East*, by Miss K. M. Kenyon.

EASTER VACATION

LECTURES IN CONNECTION WITH THE FIELD WORK EXHIBITION A course of three public lectures.

Avebury, by Mr. Alexander Keiller, F.S.A.

Scottish Archaeology, 1933-8, by Professor V. G. Childe, F.S.A.

Welsh Archaeology, 1933-8, by Mr. V. E. Nash-Williams, F.S.A.

LECTURES HELD DURING 1937-8

THIRD TERM

Near Eastern Archaeology.—A course of three public lectures.

1. *Prehistoric Cilicia*, by Professor John Garstang, F.S.A.
2. *Outstanding Needs in the Archaeology of the Eastern Mediterranean*, by Mr. Stanley Casson, F.S.A.
3. *Prehistoric Jericho*, by Professor John Garstang.

Geochronology of the Mediterranean.—A course of four public lectures, by Dr. F. E. Zeuner.

Babylonian and Assyrian Religion.—A student course of six lectures, by Professor S. H. Hooke, F.S.A. Fee, £1 1s. od.

An Exhibition of Recent Archaeological Discoveries (1933-8)

IN GREAT BRITAIN AND IRELAND

Held at the Institute, March–May 1938

(A limited number of Catalogues of this Exhibition, containing short accounts of the sites, is still available, price 1/-.)

CLASSIFIED LIST OF THE SITES REPRESENTED AT THE EXHIBITION.

TERTIARY AND PLEISTOCENE PERIODS

Pre-Crag Industries of East Anglia.
Early Palaeolithic Industries of East Anglia.
Mid-Palaeolithic Industries, Stour and Gipping Valleys.
Gipping Valley Flood-plain Gravels: Ipswich.
Ebbsfleet Channel, North Kent.
Pin Hole Cave, Creswell Crags, Derbyshire.

MESOLITHIC

Mesolithic Pit-dwellings, Selmeston, Sussex.
Late Tardenoisian Industry, Horsham District, Sussex.

NEOLITHIC AND EARLY BRONZE AGE

Nymphsfield Long Barrow, Gloucestershire.
Notgrove Long Barrow, Gloucestershire.
Whiteleaf Barrow, Monks Risborough, Bucks.
Maiden Castle, Dorset.
Whitehawk Camp, Brighton, Sussex.
Grimes' Graves, Brandon, Suffolk.
Creting St. Mary, Suffolk.
Lawford, Essex.
Avebury, Wiltshire.

MIDDLE AND LATE BRONZE AGE

Simondston and Pond Cairns, Coity, Glamorgan.
A Barrow on Breach Farm, Llanbleddian, Glamorgan.
Barrows at Ampleforth, Yorkshire.

EXHIBITION OF RECENT DISCOVERIES

Soldier's Grave, Nympsfield, Gloucestershire.
Bronze Age Settlements on Plumpton Plain, Sussex.
Jarlshof, Shetland.

EARLY IRON AGE

Maiden Castle, Dorset.
Shale-industries at Kimmeridge, Dorset.
Carshalton Camp, near Sutton, Surrey.
'Caesar's Camp,' Wimbledon Common, Surrey.
Miscellaneous Material from Surrey.
Witham, Essex.
Castle Dore, Golant, Cornwall.
Milber Down Camp, Devon.
The Meare Lake Village, Somerset.
Sudbrook Camp, Monmouthshire.
Pen Dinas, Aberystwyth, Cardiganshire.
Bredon Hill Camp, Overbury, Gloucestershire.
Castle Ditch, Eddisbury, Cheshire.
Ffrid Faldwyn Camp, Montgomery.
Miscellaneous Sussex Sites.
The Wheathampstead Oppidum, Hertfordshire.
Belgic Verulamium, Hertfordshire.
Gatesbury, Braughing, Hertfordshire.
Belgic Colchester.
Crayford, Kent.
Welwyn, Hertfordshire.
Iron Age Earthworks near Stroud, Gloucestershire.
Miscellaneous Iron Age material from Essex and Suffolk.

ROMANO-BRITISH

Roman Inscription from Brough-on-Humber.
Roman Colchester.
Viroconium (Wroxeter), Shropshire.
Leicester: Jewry Wall Site.
The Town Wall of Roman London.
Verulamium (St. Albans), Hertfordshire.
Roman Chichester, Sussex.
Welwyn, Hertfordshire.
Roman Villa at Angmering, Sussex.
Roman Villa at Hucclecote, Gloucestershire.
Roman Villa at Engleton, Staffordshire.
Roman Villa at Whitton, Suffolk.
Roman House at Capel St. Mary, Suffolk.
Stratford-on-Avon, Warwickshire.

POST-ROMAN

Tintagel.
Saxon Cemetery at Horton Kirby, Kent.

EXHIBITION OF RECENT DISCOVERIES

Anglian Cemetery, Staxton, East Riding.
Caves at Ballintoy, co. Antrim.
House-sites, Gelligaer, Glamorgan.
Jarlshof, Shetland.
The Witham Burh, Essex.
Sudbrook Camp, Monmouthshire.
Glastonbury Abbey, Somerset.
Colchester, Essex.
Thetford Priory, Norfolk.
Binham Abbey, Norfolk.
Tower of London.

GEOCHRONOLOGY

GROUND-PHOTOGRAPHS

AIR-PHOTOGRAPHS

RECENT WORK ON HADRIAN'S WALL

Financial Report

THE income of the Institute is derived from four main sources: interest from the capital sum collected by the Appeal Committee, fees from students, fees for services rendered, and subscriptions. The University authorities made it quite clear from the beginning that no financial support could be given from Central University sources in the establishment of the Institute. At the same time, it was realized when the Institute was opened that the endowment already collected was insufficient to provide for the running expenses without drawing upon capital. It was also realized that students' fees in a specialized subject like archaeology would not be likely ever to render the Institute self-supporting on this basis. Similarly, the need for the technical services referred to elsewhere in this report was so great that their establishment was a prime necessity of the Institute, even if they were at first to be run at a loss.

It was thus envisaged that, in the early years of the Institute, withdrawals would have to be made from capital to meet current expenditure. Unsatisfactory though this procedure be, it was felt that the Institute would thereby be given an opportunity of proving its worth, and it is hoped that in consequence further financial support will be obtained. The section on the Routine Work in this Report shows that the work of the Institute is now in full swing, and that it is meeting a very definite need. As a result of the first year's work, it was felt that sufficient interest and support had been aroused for the establishment of a form of subscription which would enable those who were interested in the work of the Institute, but who were unable to contribute to its capital endowment, to help in a smaller but effective way, and in return to receive certain benefits. This subscribing membership was in operation in 1937-8 for the first time, and the response was gratifying. One hundred and thirty-nine subscribers produced a total subscription of £181 3s. 6d., with one life member in addition. The details of benefits received by members in return for their subscription are given on page 62, but the administration of the Institute is anxious to help subscribers in any way possible, and suggestions under this head are welcomed.

FINANCIAL REPORT

It has been possible to keep the expenditure of the Institute both on administration and on teaching very low, owing to the great amount of voluntary assistance which has been received. This is acknowledged elsewhere, but examination of the accounts

ACCOUNTS FOR 1937-8

A. MAINTENANCE

<i>Expenditure</i>				<i>Income</i>			
	£	s.	d.		£	s.	d.
1. <i>Administration.</i>				Interest	657	13	6
Salary and National Insurance	203	5	0	Subscriptions	181	3	6
Printing, Stationery, etc.	235	3	5	Contributions for Maintenance ..	30	0	0
Miscellaneous	8	19	10	Fees:			
2. <i>Maintenance of Premises.</i>				Students	210	0	7
Rates, Insurance, etc.	123	16	9	Photographic Department ..	301	19	9
Heat, Light and Water	181	10	5	Donations for special purposes ..	350	0	0
Cleaning, Repairs, etc.	39	2	0	Proceeds of Exhibition	77	13	4
Wages, including National Insurance	175	9	6		1,808	10	8
Rent	50	0	0	Donations for general purposes			
3. <i>Educational Expenses.</i>				(Appeal Fund)	145	10	0
Lectures	34	11	3	Capital for Running Expenses ..	63	3	3
Library and Collections	322	3	3				
Photographic Department							
(Salary and Materials) ..	475	18	11				
Geochronological Department	40	0	0				
4. <i>Exhibition</i>	127	3	7				
	<u>£2,017</u>	<u>3</u>	<u>11</u>		<u>£2,017</u>	<u>3</u>	<u>11</u>

B. CAPITAL

<i>Expenditure</i>				<i>Income</i>			
	£	s.	d.		£	s.	d.
Equipment:				Donations for Special Equipment ..	439	5	0
General	226	6	4	Draft on Capital	64	9	9
Photographic Department	217	8	5				
Geochronological Department ..	60	0	0				
	<u>£503</u>	<u>14</u>	<u>9</u>		<u>£503</u>	<u>14</u>	<u>9</u>

will show to what a great extent the Institute is indebted to it. The upkeep of the large building is necessarily an expensive item, but this has been kept to a minimum by concentration only on the absolutely essential matters of attendance and cleaning. In spite of this, it is not possible to avoid drawing slightly on capital for current expenditure, though this has not been to such a large extent as was anticipated. The actual amount withdrawn from capital

FINANCIAL REPORT

has been £127 13s., but new donations of £145 10s. during the year have also been expended, so that expenditure (both capital and current) has exceeded income by £273 3s.

In considering the financial position of the Institute, it is necessary to remember that provision will have to be made for the periodical repainting of the building, in accordance with the terms of the Crown lease, and that minor repairs will tend to become more necessary. As the work of the Institute grows, additional administrative staff will become essential. It is thus clear that even without extension in any new directions, the resources of the Institute will gradually become depleted to vanishing point. Moreover, it is highly desirable that some teaching posts should be endowed. A beginning has been made with a most generous gift from Sir Charles Marston towards a lectureship in Biblical Archaeology, but the present unsettled conditions in Palestine have made it necessary to postpone for the moment the further raising of funds for the purpose. The need, nevertheless, remains, as does the need for other paid teaching posts. For both present requirements, therefore, and for highly desirable expansion, endowment is urgently required, and great efforts are being made to secure it.

The Department of Geochronology

REPORT FOR SESSION 1937-8 BY DR. F. E. ZEUNER

(Lecturer in Geochronology)

I. GENERAL REPORT

LABORATORY

The main additions to the apparatus are—

(1) A binocular microscope mounted on arm and stand, for the examination of sand and dust.

(2) A barium sulphate soil-testing outfit, for the determination of the acidity of soils preserved in sections.

(3) A capillator outfit for the same purpose, to be used when greater accuracy is required.

(4) An apparatus for the determination of calcium carbonate ('Collins's Calcimeter').

The use of (2) and (3) is explained on page 28.

EXCURSIONS

A number of excursions were made in the Thames Valley for the purpose of collecting samples for analysis. The Neolithic-Bronze-Age and Palaeolithic sites at Walton-on-the-Naze and Clacton were visited again. The meeting of the Geologists' Association at Ipswich, and part of the meeting of the British Association at Cambridge, were attended, including Pleistocene and prehistoric excursions.

COLLECTIONS

(1) A collection of stone implements from Uganda Protectorate was presented to the Department by Mr. G. P. O'Brien. It comprises Kafuan, Tumbian, Chellean, Acheulian, Levalloisian, Wiltonian, etc.

(2) Eight models of pollen grains of pine, oak, hazel, etc., were presented by Mr. J. Butter, of Deventer, Holland.

THE DEPARTMENT OF GEOCHRONOLOGY

(3) A series of determined shells from the Crag deposits of East Anglia were presented by Miss M. S. Johnston, F.G.S., Kew Gardens.

EXHIBITS

An exhibit of the geological section of Lion Point, Clacton, demonstrating the occurrence of implementiferous horizons in a geological section, is ready for exhibition. It has not, however, been mounted yet as no case is available. It would also be desirable to exhibit permanently the series from the loess-section of Saint-Pierre, near Rouen, and that from Maiden Castle, which were both shown on the occasion of the Exhibition of British Archaeology.

LECTURES

This year's course, entitled *The Environment of Early Man*, and dealing with fauna, flora, soils, and climate, is more elementary than the course entitled *Introduction to Geochronology* which will be repeated in 1939-40. The two courses together provide a fairly complete survey of geochronology and of the evidence on which chronological research is based.

A special course on the climatic fluctuations of the Postglacial and their relations to the prehistoric industries was held during the last academic year.

A demonstration of the Department was given to the Geologists' Association on March 19th.

On the invitation of Section H of the British Association, a paper on *The Middle Palaeolithic in the Mediterranean Region and Geological Evidence regarding its age in Europe* was read at Cambridge on August 19th.

Three other lectures were delivered outside the Institute.

STAFF

Since August, Miss A. Gordon has been working as a voluntary assistant in the laboratory. Mrs. Young has kindly consented to taking up tree-ring analysis during the next session.

ENQUIRIES AND VISITORS

Twenty-seven enquiries have been received, some of them involving the investigation of samples. The number of visitors from outside Great Britain has been twelve.

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II. RESEARCH

PUBLICATIONS

Papers on the following subjects have been published during the year 1938:—

(1) 'The Chronology of the Pleistocene,' *Bull. Serbian Acad. Sci.*, Belgrade, B4, 79 pp.

(2) 'The Chronology of the Pleistocene Sea-Levels,' *Ann. Mag. Nat. Hist.*, London, (11) 1, pp. 389-405.

(3) 'The Divisions of the Pleistocene and of the Palaeolithic in Palestine,' *Geolog. Rundschau*, 29, pp. 514-517.

The following paper is in the press:—

(4) 'Fluctuations of the intensity of Radiation and of the Climate in the Mediterranean Area,' *Geolog. Rundschau*, 1939.

ANALYTICAL WORK

The results of analytical work carried out in the laboratory will be incorporated in special papers.

REX HOUSE EXCAVATION, LOWER REGENT STREET

The excavations in Lower Regent Street for the foundations of a new building to be called Rex House, have yielded an interesting section and a large number of fossil bones. It is due to Mr. L. G. Taffs, who saved the first bones found, that the locality was brought to the knowledge of Science, whilst Mr. L. R. Watts, as Clerk of Works, and Mr. C. B. Skedge have untiringly supported the writer in the recovery of finds. I take this opportunity to convey my best thanks to these gentlemen, as well as to Messrs. Lane Fox & Co., Ltd., for their permission to study the site.

The site lies on the slope from the Taplow Terrace (Piccadilly Circus) to the Floodplain Terrace, the locality being mapped as 'downwash' from the higher terrace by the Geological Survey. It shows coarse flint gravels overlying yellow or grey sands which both rest on an undulating surface of London clay. Most of the bones are rolled and come from the limit between clay and sand. The top foot of the clay is evidently re-deposited, as it also contains bones. Hippopotamus, Bos, horse, and rhinoceros have so far been recognized. In spite of many hours of most careful search only one flint has been recovered which appears to be made by man. It is a small Clactonian flake with a marked bulb, and rolled.

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CHARLTON SAND AND BALLAST CO., LTD., PIT NEAR SHEPPERTON

Thanks to Messrs. G. H. and J. H. Pattinson, directors of the Charlton Sand and Ballast Co., Ltd., a series of finds from the upper fifteen feet of the Floodplain Terrace has been preserved. The section has not yet been studied in detail. The finds, all from one spot, comprise a perfect antler of reindeer, leg- and other bones of a very small ox, a larger ox, and a small horse, and a first-century A.D. quern. The state of preservation of the bones seems to suggest a mixture of two different deposits. The reindeer antler forms, of course, part of the more highly fossilized series of bones. This site will be investigated in the coming season.

THE DETERMINATION OF THE ' pH-VALUE ' OF FOSSIL SOILS

The two outfits for the determination of soil acidity which have been added to the equipment of the laboratory are used for the investigation of buried soils such as those called 'turf-lines' by archaeologists. Buried soils often for a long time retain some of their chemical characteristics. Soils, for instance, which were formed on a rock containing calcium carbonate and under a humid climate, are usually deprived of, or poor in, calcium carbonate, and, unless secondary infiltration has taken place since, will remain so even when covered by a later deposit. The 'pH-value' is a figure indicating the degree of acidity of the soil which is the greater the more of the alkaline components (among them calcium carbonate) have been washed out. The pH-values can therefore be used to detect, or to confirm, the presence of fossil soils, but in the process it is essential to consider carefully all the other geological factors.

Some Results of Archaeological Research in Scotland, 1932-7

By PROFESSOR V. GORDON CHILDE, V.P.S.A.

Lecture given at the Institute on April 4, 1938.

WHILE some additional evidence for the presence of mesolithic food-gatherers in Scotland has been obtained in the period under review, it has not sufficient general interest to need description here. On the other hand, recent studies on chambered cairns, which are attributed to the local New Stone Age, have thrown fresh light on the connexions of the megalithic culture in Britain as a whole. Exemplary field-work by Anderson and Bryce had established the general character of the monuments, and it was easy to show¹ that, for comparative purposes, they fell into two main groups, typologically distinct. The south-western group, focussed round the Clyde, is characterized by gallery graves or long stone cists, classically divided into several segments by low transverse slabs, termed septal stones; in Caithness and adjacent north-eastern counties, the burial vaults are passage graves, though here, too, the chamber is subdivided by pairs of portal-slabs projecting from the side walls.

The Royal Commission's Report on Skye, the Outer Hebrides, and the Small Isles (published in 1931) had revealed a great concentration of 'neolithic' tombs in a region intermediate between the Clyde and the Caithness provinces. But no systematic explorations had been conducted till W. Lindsay Scott, as a volunteer, undertook the apparently thankless task of excavating some of these hopeless-looking ruins. He has not only elucidated the plans of certain dilapidated monuments and gathered an unexpected harvest of instructive relics. He has also been able, following in the footsteps

¹ On these and for other points not specially documented see Childe, *Prehistory of Scotland*, 1935.

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of Anderson and Bryce, to show that the structure of the covering cairn is no less significant than that of the chamber, and is calculated to throw no less light on their foreign connexions.

After a fruitful campaign on the round cairn at Rudh'an Dunain, Skye, described in 1932, Scott turned his attention to Clettraval in North Uist.¹ Even in prehistoric times the monument had been violated: the stones of the long cairn had been used for the construction of a ring-fort or cashel in the Early Iron Age. Still, patient excavation recovered the main outlines of the neolithic monument. The long sides of the cairn were delimited by a massive wall of slabs on edge, with a low wall of horizontal slabs on the hill-slope outside and below it, and beyond that again a ramp of small slabs tilted inwards against the low wall. The straight façade at the east end had been formed of orthostats alternating with coursed rubble masonry—what the excavator terms half-timbering. The chamber is a gallery divided into six segments by low septal stones. To this extent it might be classed as a segmented cist of the Clyde type. But the gallery widens out from 3 feet at the entrance to 7 feet in the innermost segment; similarly the lateral orthostats increase in height inwards so that the outer segment must have been 4 feet 3 inches high, the innermost 6 feet 3 inches. In these features the Clettraval chamber approximates rather to a passage grave so that it could be treated as typologically intermediate between the Clyde and Caithness types.

The chamber yielded an unprecedented wealth of pottery; apart from Iron Age sherds in the uppermost stratum, fragments of forty-one vessels could be distinguished, the great majority being 'Neolithic.' The latter constitute the most representative specimens of a subdivision of Western neolithic pottery that Piggott and I had previously recognized among the relics from Clyde cists and had termed Beacharra ware.² The completed vases from Clettraval emphasize the fabric's Breton affinities that I had already pointed out in describing the vases from the type site. And Scott was able to prove by meticulous excavation that they occupied the same horizon in relation to beaker ware as do their Breton analogues. Three layers were distinguishable in the chamber, and the excavator was able to establish statistically that the Beacharra ware was associated with the primary interments in the deepest layer while

¹ *Proceedings of the Society of Antiquaries of Scotland (Proc.)*, lxix, 480–556.

² *Arch. J.*, lxxxviii, 54 and 104.

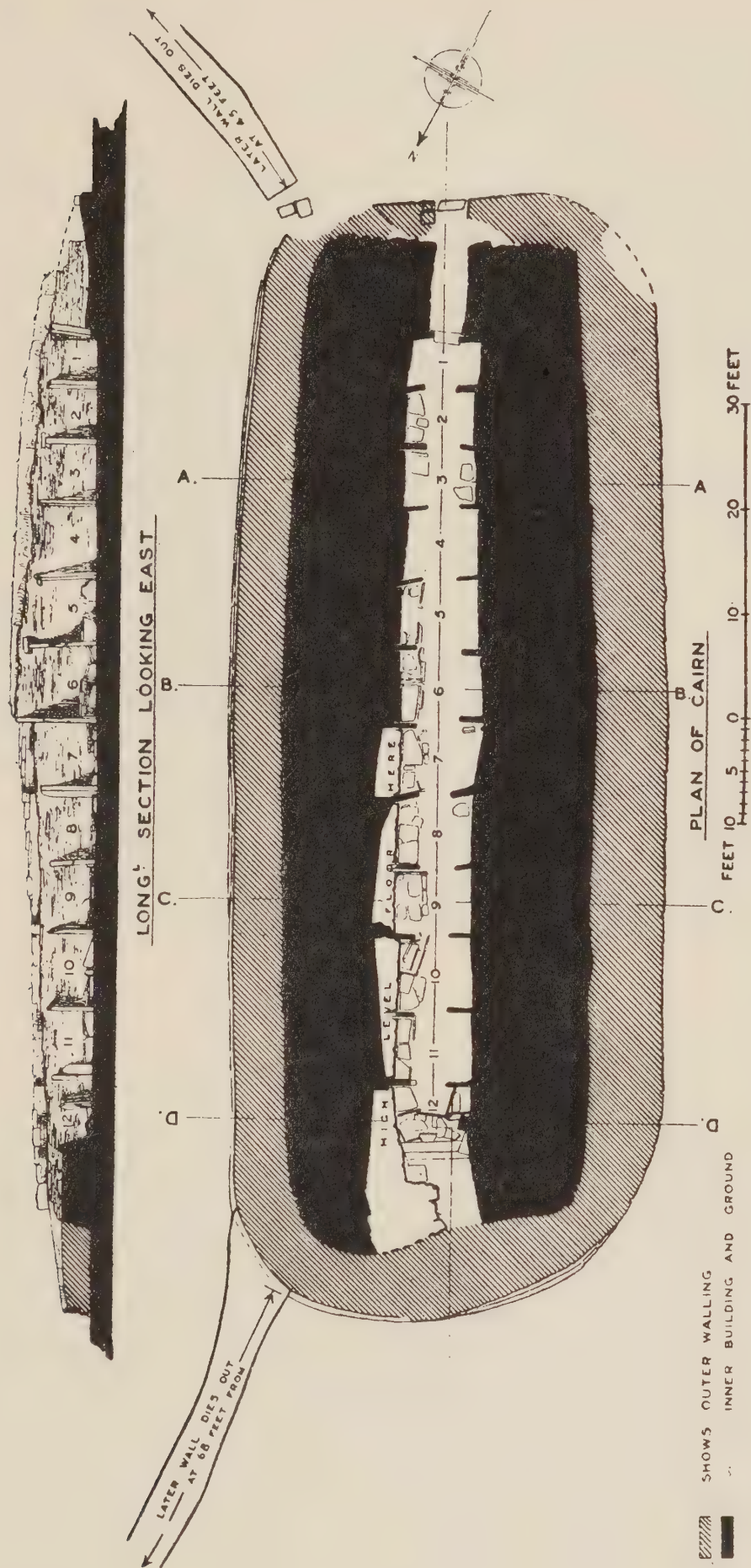


FIG. 1.—MIDHOWE CHAMBERED CAIRN, PLAN AND SECTION

beakers accompanied secondary burials. Thus Scott has demonstrated stratigraphically the priority of 'Neolithic' to local Beaker culture in the Hebrides, as he had already at Rudh'an Dunain in Skye.

In Orkney several peculiar types of burial vault had long been known; despite extravagant divergence in detail, all belong in general to the passage grave class. Excavations on Rousay by the late Dr. Callander and Mr. Walter Grant have disclosed a new variant, not so easily classified. At Midhowe¹ they explored a denuded mound 100 feet long by 30 feet wide. It proved to contain a chamber or gallery 76 feet long, entered at the south-east end by a passage only 12 feet long and only 3 feet wide. The gallery is divided into twelve compartments or stalls by uprights projecting from the side-walls like portals (see Fig. 2). Of course, in principle there is nothing novel in this arrangement. The Caithness chambers, described by Anderson, are divided in precisely the same way, albeit into only three compartments. So in Orkney, too, four pairs of slabs divided the chamber at Unstan (that lies at right angles to the passage) into five compartments. But the extravagant length of the Midhowe chamber, compared to its width, brings out a family likeness to the Clyde type of gallery grave, especially when it is recalled that in Ulster the segmented galleries are divided by portals as well as septal stones. In seven stalls along the east side of the gallery flat slabs had been laid to form low benches or shelves. On these reposed the skeletons buried in the mausoleum—twelve adults, six children, and two infants.

The jambs towards the north-west end of the chamber had all been cut off abruptly about five feet from the floor. The excavators envisage the possibility that an upper story with a separate entrance had existed over this end. Violation of the monument in the Iron Age had destroyed the needful evidence, but discoveries described below have gone far to confirm their hypothesis.

Subsequent conservation work by H.M. Commissioners of Works under Mr. J. S. Richardson fully revealed remarkable features in the external structure of their cairn. It was bounded by two retaining walls. The outermost rests upon a stepped foundation of two horizontal courses. Above, the slabs are laid obliquely, producing a sort of herring-bone pattern. Similar oblique walling was disclosed in 1934 round the rather smaller stalled cairn of Yarso²

¹ *Proc.*, lxviii, 320-50.

² *Ibid.*, lxix, 325-51.



FIG. 2.—MIDHOWE CHAMBERED CAIRN: VIEW

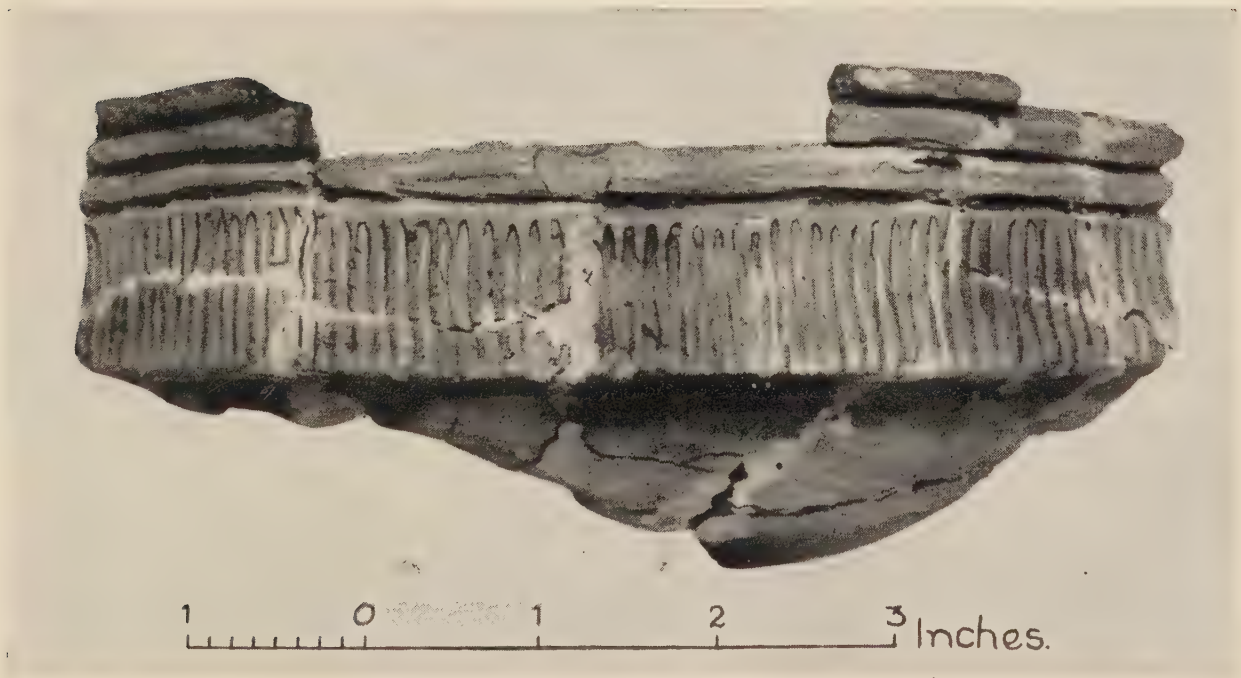


FIG. 4.—MIDHOWE CHAMBERED CAIRN: PART OF CLAY URN

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and in 1936 round that at Blackhammer,¹ both on Rousay. In describing the last-named cairn Callander drew attention to the similarity of the masonry pattern to the designs incised on Unstan pottery. Built casing walls had, of course, been recognized by Anderson's round-chambered cairns in Caithness and Orkney. But in the light of the new data we can now say of Orkney, even more confidently than of the Cotswolds, that the 'Neolithic' burial vaults are contained not in shapeless heaps of stones, but in regular

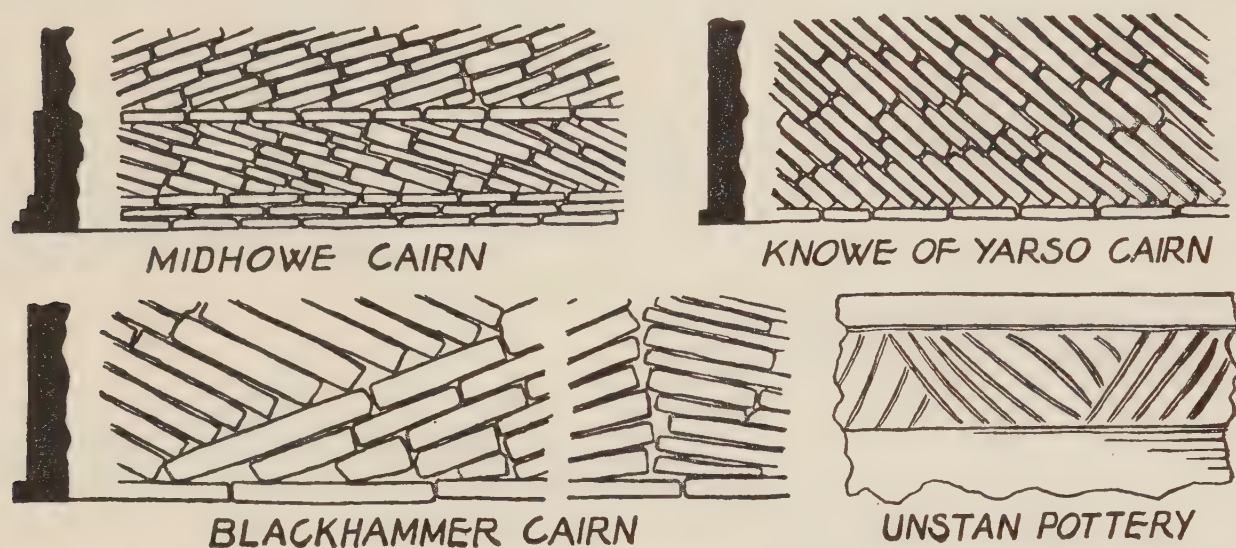


FIG. 3.—STRUCTURAL FEATURES IN CAIRNS COMPARED WITH POTTER'S PATTERN

constructions comparable to the monumental *navetas* of the Balearic Isles.

As on North Uist, the cairns on Rousay had all been disturbed in prehistoric times. At Midhowe two skeletons had been buried in the gallery after the collapse of its roof, and food-refuse, together with rude stone clubs and pottery, apparently Iron Age in date, was mixed up with the stones filling the chamber. But sherds of seven 'Neolithic' vessels, six explicitly of Unstan type, were associated with the primary interments at Midhowe and at least one similar bowl, together with a stone axe, was recovered from Blackhammer. Unstan pottery, which has some connexion with the 'Neolithic' pottery from Eilean an Tighe in Uist and that from a cairn at Slieve na Caillighe (Lough Crew) in central Ireland, is generally regarded as the north-eastern counterpart of the Becharra ware found in the Clyde cists. Its relation to Beaker-ware is not, however, so

¹ *Proc.*, lxxi, 297-308; in this cairn the entrance is not at the end of the gallery, but on its southern long side, as at Unstan.

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satisfactorily defined. Flint knives from Midhowe and Black-hammer would in England be termed Early Bronze Age. The Yarso chamber yielded no Unstan ware, but a sort of food-vessel, a barbed arrow-head and some rather rough leaf-shaped forms.

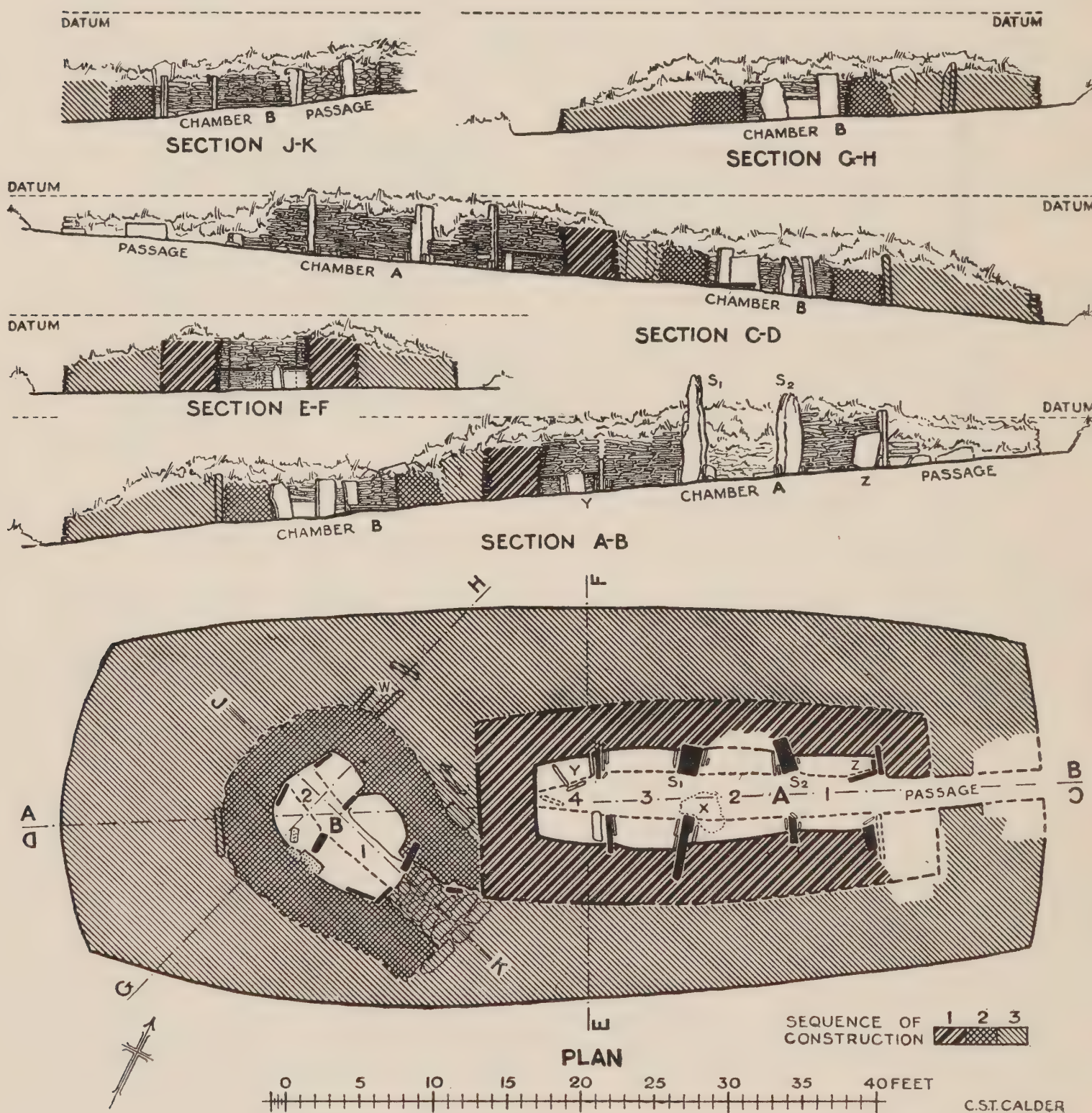


FIG 5.—CALVE OF EDAY, STALLED CAIRN: PLAN AND SECTIONS

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The stalled type of chamber defined by Callander and Grant on Rousay was traced in 1936 on the neighbouring island of Eday by Mr. C. S. T. Calder.¹ On the little Calf of Eday he explored a cairn covering two chambers. One (A) was a stalled cairn of the Rousay type, the other a bipartite passage grave closely recalling the tripartite Caithness plan. The excavator believes that the small passage grave is a later addition, being built up against the inner casing wall round chamber A and enclosed in a rougher wall. But a single outer retaining wall surrounds both chambers. Chamber A yielded two stone axes, two leaf-shaped arrow-heads and no less than thirty-four vessels, mostly of Unstan ware. No Neolithic pottery was recovered from the little passage grave, but in it and on a secondary floor in chamber A lay Iron Age pottery and domestic refuse.

In 1937 the same excavator added other significant details to our knowledge of funerary architecture in the Orkneys. At Huntersquoy on Eday he examined a site marked 'Standing Stone' on the O.S. map.² It proved to be a passage grave built in an artificial excavation in the hillside. But above the subterranean chamber and separated therefrom by a bed of laid clay, Calder traced the foundations of a second chamber, originally buried under a mound, and provided with a separate entrance. Thus the existence of two-storeyed burial chambers in the local 'Neolithic' period is demonstrated for Orkney; two-storied cists of the Bronze Age had been known before. Like Americans, the prehistoric Orcadians seem to have a rooted preference for vertical as against lateral expansion, though the motive operative on Manhattan can hardly have applied.

From the comparative standpoint the discovery of a wholly subterranean burial chamber is significant for British prehistory in general. Once more the megalithic tradition of the British Isles is brought into line with that of the Paris Basin, South Spain, Sicily and Greece. And in that connexion another observation of Mr. Calder's is perhaps still more convincing. He has ingeniously recognized that the curious little chamber cut out of an isolated block of rock, the celebrated Dwarfie Stane on Hoy, is really a rock-cut sepulchre.³ He has published drawings to show how faithfully it reproduces the plans of West Mediterranean rock-cut tombs and how the same plan was copied locally in masonry. Thus in the

¹ *Proc.*, lxxi, 115-54.

² *Proc.*, lxxii, 193-204.

³ *Proc.*, lxx, 217-231.

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extreme north Calder has produced another link in the chain connecting Atlantic and Mediterranean funerary architecture.

In the sepulchral record stone circles are supposed to carry on the tale where collective burial vaults left it. Scotland is rich in such monuments. In particular in Aberdeenshire, Banffshire and Kincardineshire there is a peculiar group of over seventy, all sharing certain common idiosyncrasies. Surveys and some excavations by Coles had established their outstanding features—an irregular ring of orthostats encircling a ring cairn, itself often bounded inside and out by rings of small orthostats. The most striking peculiarity was the Recumbent Stone—a gigantic monolith lying horizontal between the two tallest uprights. *A priori* a Bronze Age date has always been assumed for such monuments, but the relics collected from them in the past have been at least ambiguous: beside a single wrist-guard, such circles had yielded stone ladles of Iron Age type and fragments of 'urns' that certainly were not early.

In the hope of defining the age of the group I gladly accepted the invitation of the late Mansfield Forbes to assist in excavating the recumbent stone circle of Old Keig in 1932 and 1933.¹ We knew from *Archaeologia* that the monument had been desecrated in the seventeenth century, but rightly hoped that the spoilers had left some usable indications of the circle's age. We located near the centre a patch of earth, reddened by the pyre, and a shallow grave cut into it. Everywhere—in the central pit, under the recumbent, in the socket for an orthostat—pottery was scattered about. Apart from one minute decorated sherd that might have passed for Beaker, found near the periphery of the ring cairn, all the fragments belonged to rather coarse but hard-baked cooking pots and bowls, generally with carefully flattened rims (Fig. 6). On the evidence before us we had to assume that this pottery was made by the circle's builders. And in 1933 we naturally compared it with the Iron Age A ware of southern England and were thus led to a 'Hallstatt' date for the monument. But our deductions were incorrect.

In 1934 H. Kilbride-Jones² excavated the recumbent stone circle of Loanhead of Daviot for H.M. Commissioners of Works under the direction of Inspector J. S. Richardson. He too found flat-rimmed pottery of Old Keig type, both in a central pit and under 'minor cairns' at the feet of the orthostats; and some vases actually contained cremated human bones. But Kilbride-Jones

¹ *Proc.*, lxviii, 372-393.

² *Ibid.*, lxix, 168-213.

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also found quite a number of Beaker sherds in the central pit and scattered about the site. Moreover, under a small cairn, apparently heaped against the cairn, supporting orthostat 8, was a cist containing a Pigmy Vessel of the small food-vessel type. Finally, east of the stone circle an urnfield was discovered in 1935 (Fig. 7).¹ A space

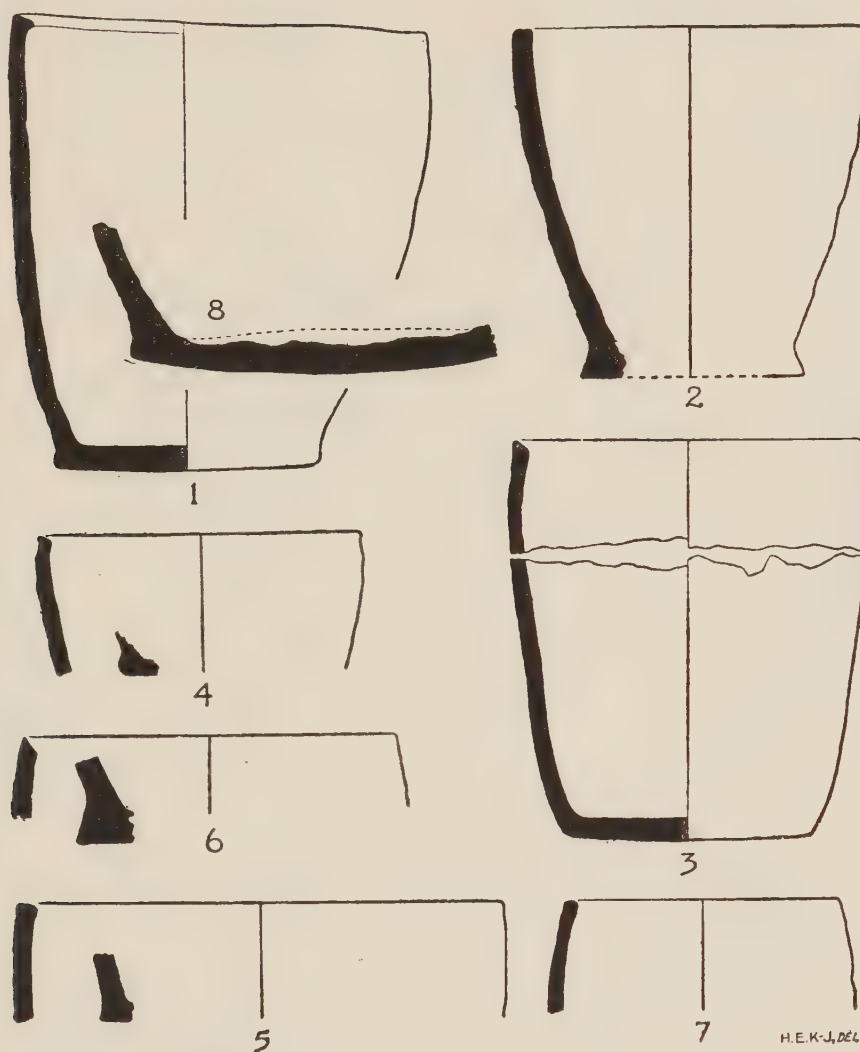


FIG 6.—LOANHEAD OF DAVIOT: POTTERY SECTIONS

35 feet in diameter was delimited by a shallow trench, nowhere more than 10 inches deep, that really served as the foundation for a rough stone dyke. It was interrupted at three points, the cist that had contained the Pigmy Vessel standing over the western gap. Thirty cremations had been buried in the enclosure, fourteen of them in twelve Cinerary Urns. Of the Urns five were Enlarged Food-vessels, six Overhanging Rim Urns, ranging from 'early' forms with concave neck and well-marked shoulder to degenerate cordoned

¹ *Proc.*, lxx, 278-310.

ARCHAEOLOGICAL RESEARCH IN SCOTLAND

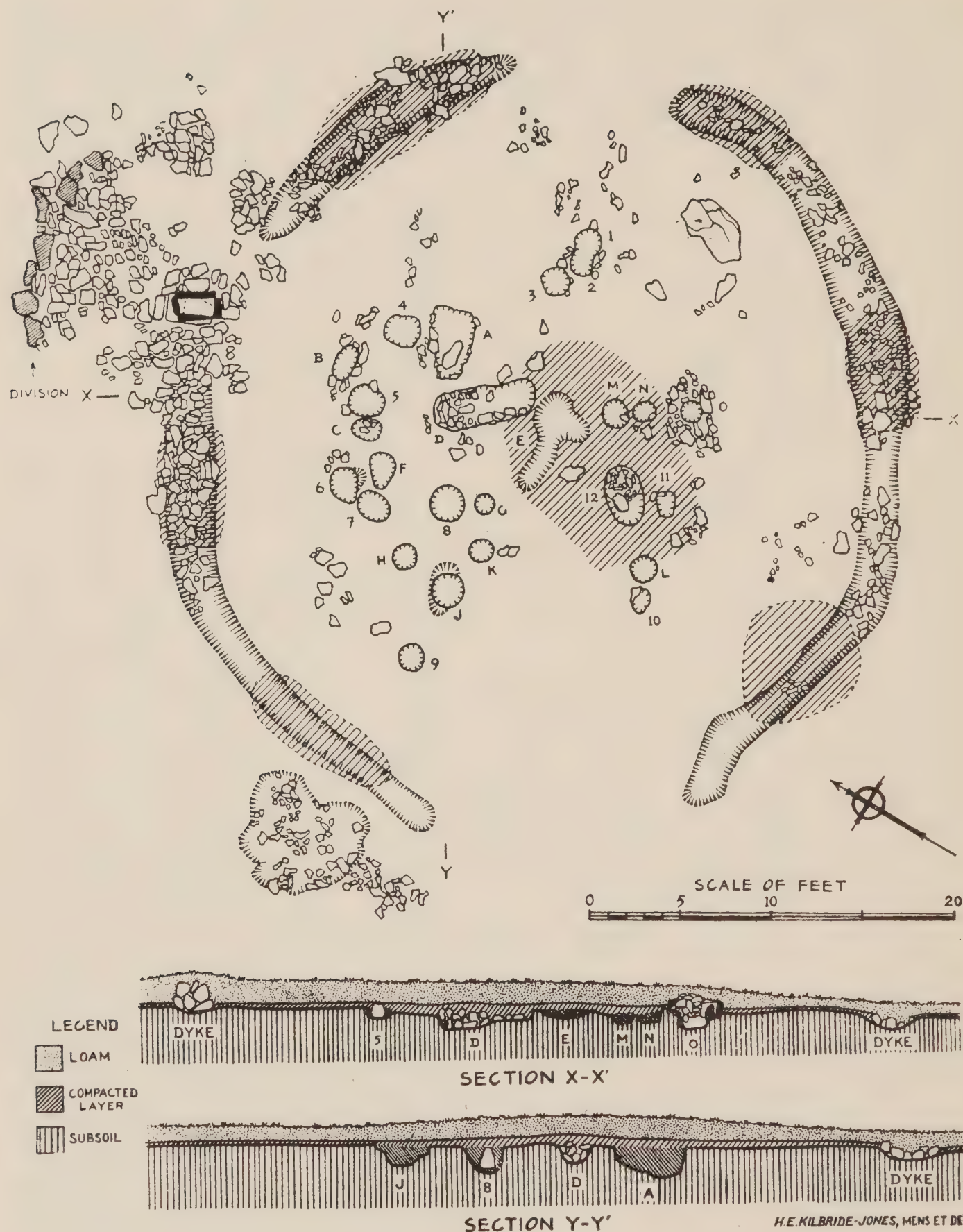


FIG. 7.—PLAN AND SECTIONS OF THE LATE BRONZE AGE CEMETERY AT LOANHEAD OF DAVIOT.

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urns and one a plain pot of Old Keig ware. Within the same area the excavator found fragments of a mould for casting a leaf-shaped bronze sword and sherds of Beaker and of Old Keig ware.

At the end of the season the excavator further found, 20 feet west of the stone circle, an area, 22 by 13 feet, of intensely burned earth.¹ Scattered about on it were disturbed stones, pieces of charcoal and iron slag and sherds of Old Keig ware. The site is described as remnants of a bloomery. It would therefore seem that the Old Keig ware is the latest pottery on the site. The urnfield and the Pigmy Vessel should both be later than the stone circle, the date of which is presumably given by the Beaker sherds. The Old Keig wares from Loanhead and the eponymous site no more date the monuments than do the Iron Age sherds found at Clettraval or Midhowe or, for that matter, Stonehenge itself. And the date of Old Keig ware itself is uncertain. It is now admitted that the ceramic sequence valid for southern England cannot be applied without reserve to the Highland zone. From the central pit at Loanhead of Daviot comes one sherd with everted rim that is claimed to show Roman influence.

So this account of Recumbent Stone Circles has carried us rapidly across the well-charted region labelled 'Bronze Age' and landed us abruptly in obscurity of the Iron Age. Here the archaeological record changes: instead of cairns and circles we have forts and refuges—laborious to dig, unattractive to the relic-hunter. In Scotland over two thousand defensive sites are known, of which barely one per cent has been scientifically excavated. For ten years I have been trying to find some clues in this mass to guide us across the dark chasm that separates the Bronze Age, so well lit by funerary pyres, from that when flaming Caledonian villages cast a lurid light on the Roman invasions. From comparative studies I had concluded that the fires that produced our vitrified forts should enlighten just this gap. And so for five years I have concentrated on these monuments that have been puzzling geologists and antiquaries since 1760.

In 1933, 1934 and 1935 I worked at Finavan, near Forfar.² It was planned by Major Deedes and Mr. H. Fairhurst. Its plan is typical of many fortresses in this group—Craig Phaidraig, Cnoc Farril, Carradale, Dunagoil. Without excavation one can see how the banks run parallel and dead straight, ignoring the natural contours of the hill. Excavation revealed beneath the debris of loose

¹ *Proc.*, lxxi, 401-405.

² *Ibid.*, lxix, 49-80; lxx, 347-352.

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stones and others melted together, a built rampart which was, in fact, found to run true for over 200 feet. The rampart was faced inside and out with superb dry-stone masonry (Fig. 9), still standing in places over 8 feet high. It is 20 feet thick. Beneath the shelter

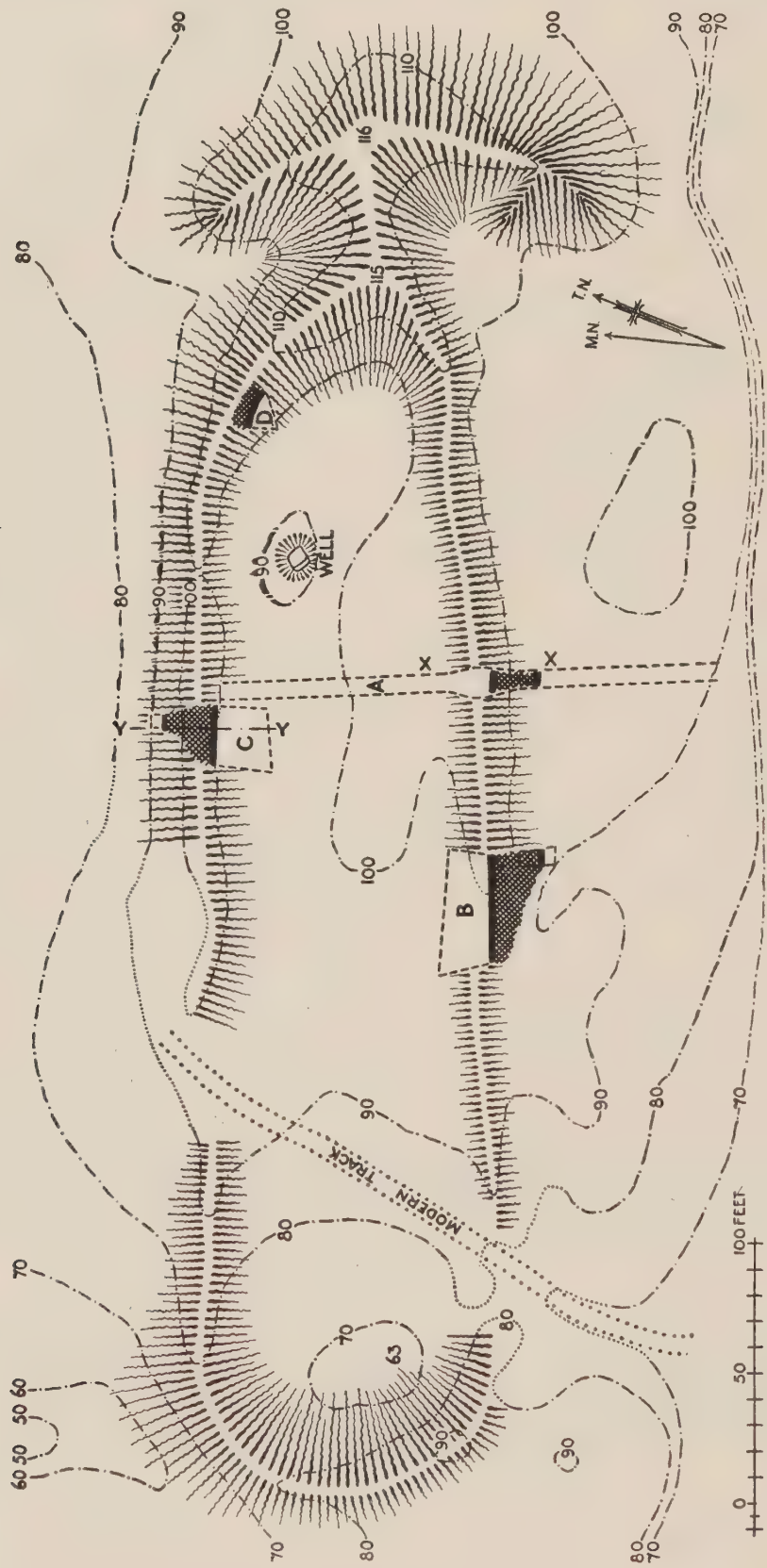


FIG. 8.—FORT ON FINAVON HILL: PLAN



FIG. 9.—FINAVON: OUTER WALL FACE

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of the northern rampart was ranged a row of houses. Their walls were not supported by earth-fast posts so that only square stone hearths and drainage ditches marked their positions.

Unhappily, the relics recovered—much extremely coarse pottery, six stone whorls, some good flint scrapers and blades, and a thick lignite ring with La Tène analogies—did not suffice to date the occupation. Nor was any evidence obtained as to how the vitri-

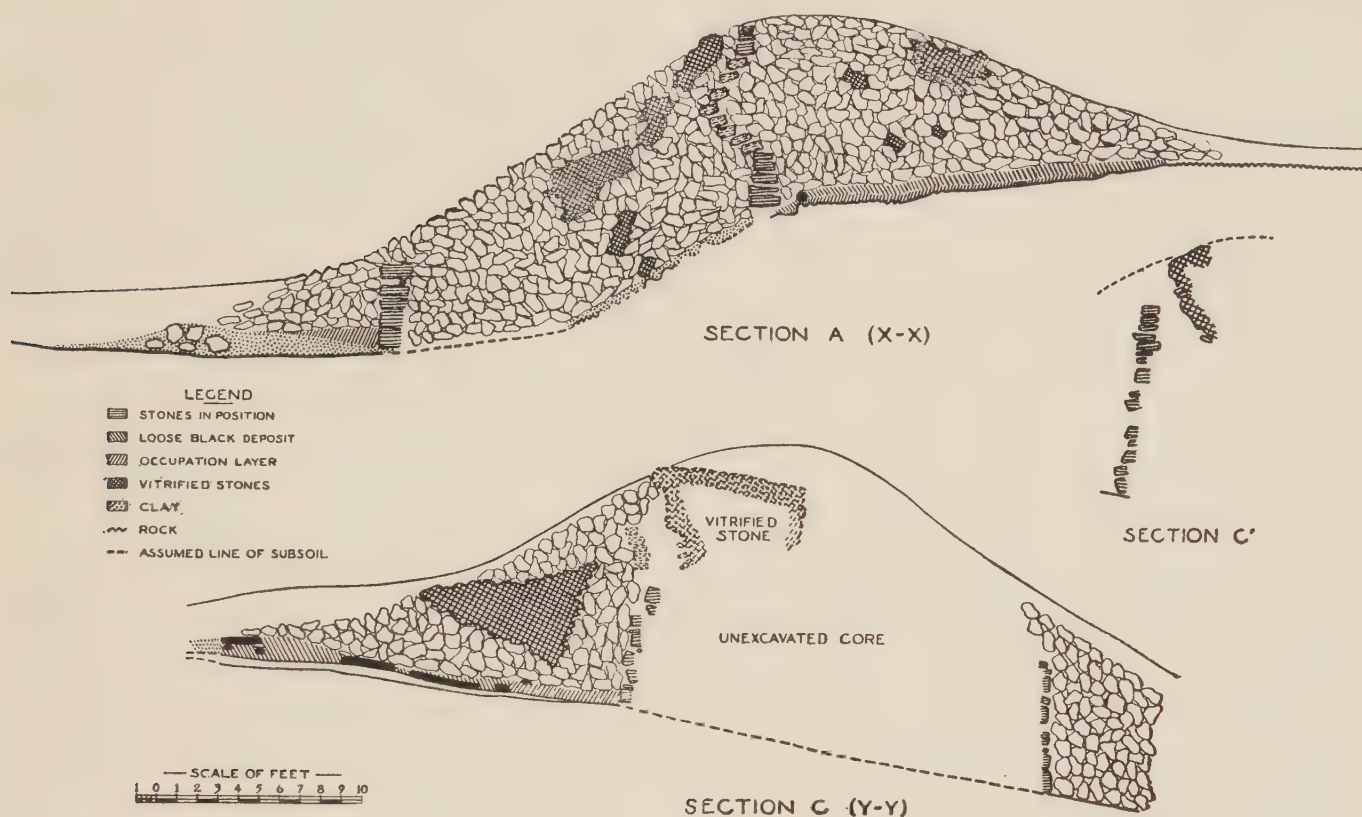


FIG. 10.—FINAVON: SECTIONS ACROSS THE RAMPARTS

faction was accomplished. All round the enclosure near the walls, but above the occupation floors and hearths, we uncovered numerous charred logs. The debris from the ramparts included masses of stone fused together, but these had clearly fallen from above. The facing stones inside and outside were unfused, and of course we could not tear down the beautiful masonry to look behind the faces. Still, in places a collapse of the faces had made a section through the rampart permissible. But in the core no solid masses of fused stones were found *in situ*, but only loose blocks of sandstone. Along the top of the surviving north rampart extensive blocks of fused material could be discerned. They could be traced down a few feet below the wall-top, but seemed to thin out downwards, and gave no indication of reaching bedrock, 5 feet lower down (see section, Fig. 10).

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More conclusive results were obtained by the excavation of Rahoy with Mr. Wallace Thorneycroft during 1936 and 1937.¹ It is a circular enclosure, 40 feet in internal diameter, on the summit of an isolated peak rising steeply 200 feet from the shore of Loch Teacuis in the Morvern district of Argyll. All round the outside stones suitable for dry-stone building lay about under the turf, but no masonry face survived. Instead we encountered an apparently continuous wall formed of really discrete masses of fused stones.

On the inside long segments of a built inner face were detected, but they were curiously buckled and tilted. And the masonry hardly ever rested directly on the rock; beneath the bottom courses were black material and carbonized timbers. Two sections were cut through the ramparts. In both the vitrified material was some 9 feet wide, but only 3 to 4 feet deep. Everywhere there were loose unmelted stones beneath it and patches of black matter and charcoal in crannies of the rock. Casts of hazel-stems were embedded in the vitrified matter, running parallel to and radial to the wall-faces.

In the interior the uneven rock surface had been partially levelled up by a raised pavement. In its centre stood a rectangular hearth, but no other structures could be identified. As at Finavon, charred logs were lying all about and traces of a violent conflagration were conspicuous. The fort's occupants had used no pottery, and relics were very scarce. Six weeks' trowel and brush-work yielded one flint scraper, two saddle querns, an iron spear-butt, an iron axe, and a broken bronze fibula. But had we salted the site, these were precisely the objects I should have inserted; they do establish the pre-Roman date of the occupation. The axe is the twelfth and largest example of that rare form of socketed iron axe that copies the bronze socketed celt; it should, as Rainbow has remarked, belong to a phase of transition from the Bronze to the Iron Age. The fibula is evidently a late La Tène I form; closer analogies are found in Gaul than in England, but the nearest of all is that from a fort at Abernethy, overlooking the Tay estuary.

Now the Abernethy structure is defended by a so-called Gallic wall composed of two stone faces, tied together with transverse beams and enclosing a core of timber and rubble. And Schuchhardt has suggested that the combustion of such a wall has been responsible for the production of vitrification. Déchelette and Bersu have favoured his hypothesis, and the Scottish evidence is in harmony

¹ *Proc.*, lxxii, 23-43.

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therewith—at Rahoy the burnt logs, the general traces of a conflagration, the charred material under the walls, the distortion of the inner face and the failure of an outer face to survive (in burning the expansion of a circular wall would burst the outer casing) and the casts of timbers in the vitrified core are all explicable on Schuchhardt's assumption. And the safety pins show that vitrified and Gallic walls are contemporary in Scotland.

Mr. Thorneycroft doubted whether such a Gallic wall would burn and whether its combustion would produce the requisite heat; he had found a temperature of about 1100° C. needed to melt the sandstones that had been fused in the ramparts of Finavon. To settle the matter he had a model Gallic wall built to my specifications on his colliery at Plean.¹ It was 12 feet long by 6 feet wide by 6 feet high. Bricks, laid loosely like stones in a dyke, were used for the faces, which were tied together by pit props at vertical and horizontal intervals of 16 inches. Each layer of tie beams supported a layer of pit-props and scrap timber, the interstices being filled with basalt rubble. The 'wall' was fired on a windy and snowy day in March 1937. To ignite it, timber was heaped up all round and kindled. The tie-beams, projecting through the faces, soon caught fire. As they were consumed, the faces began to gape and soon they collapsed. But between the fallen brickwork the rubble, heaped at a natural angle of repose over the lowest layers of timbers, continued to get hotter and hotter, becoming a glowing mass. Next day it was found that this rubble had been fused into solid masses. Casts of timbers were contained in these lumps, and some of the basalt had run in 'drops' and even fused on to the foundations of the brickwork, all just as in the prehistoric forts. Indeed, all the characteristic phenomena of vitrification had been reproduced experimentally. I accordingly infer that most of our vitrified ramparts are just Gallic walls that have caught fire. Vitrified and Gallic forts may be grouped together as the Abernethy complex as I suggested in *The Prehistory of Scotland*.

I cannot conclude this brief survey without reference to a contribution made by Shetland to world archaeology. The general aspect of a Viking house is familiar from the sagas. But till recently concrete remains to supplement literary descriptions were very rare outside Iceland. Now the scientific insight of Dr. A. O. Curle has brought to light examples of Viking domestic architecture at Jarlshof

¹ *Proc.*, lxxii, 44-48.

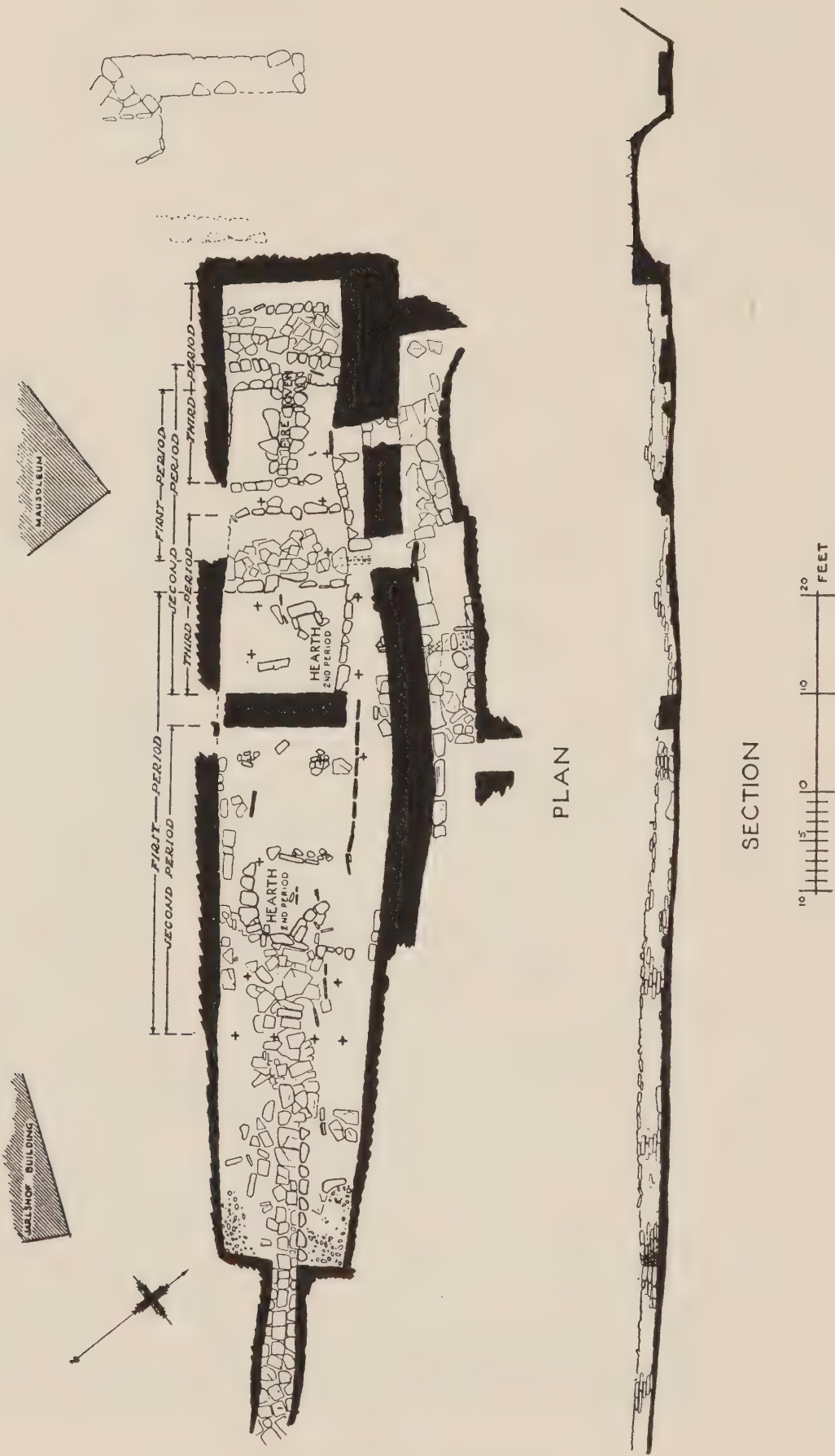


FIG. II —JARLSHOF, SHETLAND: PLAN OF VIKING HOUSE

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in Shetland.¹ In 1934 he uncovered a complete long house, originally 90 feet long and 12 to 18 feet in width. Its walls were two courses thick and composed on the outside of alternating layers of stones and turfs, on the inside of continuous masonry. The interior had been remodelled several times, but the excavator was able to recognize the holes for the posts supporting the roof, the slabs on edge that formed a foundation for the *pallr* or raised wooden platform round the *stofa* (main room) and the oven and hearth (used for heating stones) in the *eldhus* or kitchen. Relics from the original floor or from a midden outside the house included combs, whorls, whetstones, sinkers and many slates bearing graffiti. One of the latter depicts what Dr. Curle has recognized to be a Viking boat.

We are indebted to the Society of Antiquaries of Scotland for permission to reproduce here the figures which have appeared in their *Proceedings*.

¹ *Proc.*, lxix, 265–321.

Outstanding Needs in the Archaeology of the Eastern Mediterranean

By STANLEY CASSON, M.A., F.S.A.

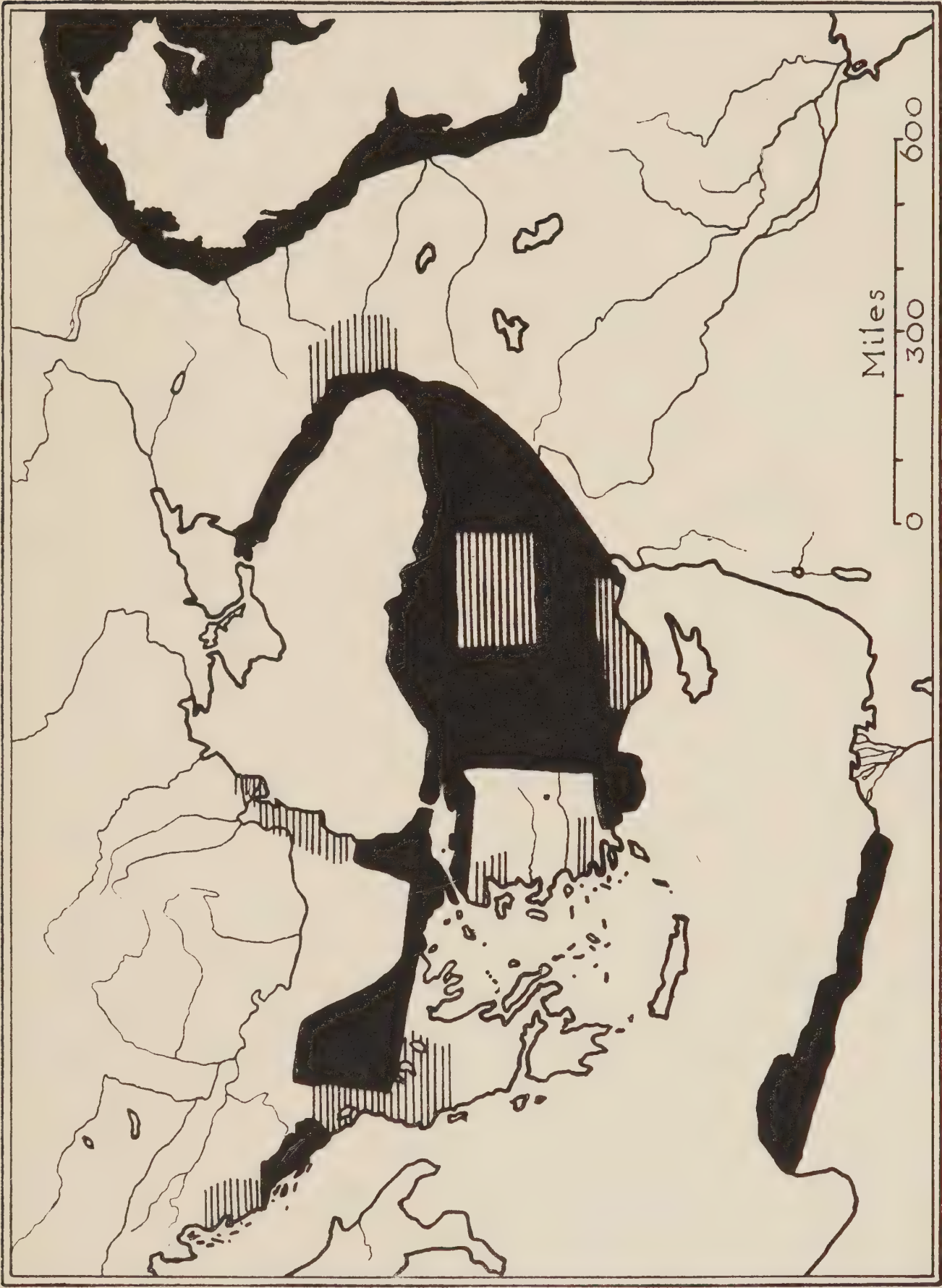
Lecture given at the Institute on June 13, 1938

MY own professional work is wholly confined to the study of the archaeology of the Near East. It is in consequence a refreshing experience to be given the honour of addressing an audience of whom a large proportion, I assume, are concerned with the archaeological research of the Near West. (I have not, in fact, before this moment heard that title used, but if the Near East is the area adjoining the marches of the wide open spaces of Asia that lead ultimately to the deserts of Cathay and its Mandarins, then the Near West seems an appropriate name for the region which meets the Near East and is itself bordered by the open spaces of the Atlantic and the remoter deserts of America and its Magnates.)

Toilers in the Near East pause at times, lay down their pens and their vitriol pots, and sigh with regret when they ponder over the pleasant comity of nations that comprise Near Western Archaeology. In those Elysian fields rancorous controversy hardly exists: archaeologists vie with each other in the exchange of almost Oriental modes of address, controversy is hardly distinguishable from conversation, and periodically the Near Western archaeologists meet at tea-parties, soirées, and conversaziones.

Far otherwise is the archaeology of the Near East. There a score of national flags wave on the breeze, stirring a score of nationalisms. Each state must keep its flag flying by some swiftly snatched concession, by some rapidly organized excavation, or by some suddenly revealed *coup de théâtre*. In the Near West you are blest in dealing with an archaeological complex which has virtually no literary background. Your Bronze Age was happily completely illiterate, your Celts could apparently read but not write, and of the Roman Age outside Italy there is so little of literary merit that few men of literary bent waste more than a few drops of their midnight oil upon it. Your Dark Ages, even more happily, are

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MAP OF THE EASTERN MEDITERRANEAN. AREAS IN WHITE HAVE BEEN ARCHAEOLOGICALLY EXPLORED TO AN ADEQUATE EXTENT. HATCHING INDICATES AREAS WHERE EXCAVATION IS DESIRABLE BUT LITTLE HAS BEEN DONE, AND BLACK SIMILAR AREAS WHERE NOTHING HAS BEEN DONE.

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illuminated by writers of such obvious incapacity and illiteracy that by general agreement their works are treated as mere footnotes to the major work of archaeology.

Far otherwise is the Near East. There we have, long established, the sensitive distinction, always firmly emphasized, between scholars and archaeologists. The distinction was first made, I think, when Schliemann excavated Troy. 'Let there be no mistake,' said the German pundits. 'This man is, no doubt, inspired by the purest motives: he is fired by the highest ambitions: but he is engaged in gross manual labour and what he is doing must in no case be compared with what we are doing.' Max Müller, Conze of Vienna, Ernst Curtius, and all the leading so-called archaeologists patronizingly agreed on the same line of approach. They told Schliemann that they much admired him but that he must remember that the Homeric poems were works of imagination, and that in consequence what he found had nothing to do with Homer. 'You know,' wrote Müller, 'how greatly I disagree with your interpretations and still more with Gladstone's. But that in no way affects my gratitude for your untiring energy. I admire your enthusiasm for its own sake.'

Schliemann, undeterred, faced the surprises of his own excavations with fortitude. 'From the outset,' he wrote, 'the sole purpose of my excavations was to discover Troy, regarding the site of which hundreds of solid books have been written by a hundred scholars, but which no one has so far attempted to lay bare by excavation. The discovery by me of relics of a Stone Age, so far from discouraging me, has merely made me all the more anxious to get down to the site of the first settlement here and I intend to do so, even if I have to dig down a further fifty feet.'

There in a nutshell is the genesis of the conflict between the professional literary scholar and the excavator, the distinction between learning and enthusiasm—the ultimate distinction which people like ourselves can better classify as that between the fallibility of the written word and the objective existence of archaeological fact.

Yet in our Near Eastern world kudos will still go to the scholar who

settled *Hoti's* business—let it be—
'properly based on *oun*—
'gave us the doctrine of the enclitic *De*,
'Dead from the waist down . . .
'This man decided not to Live but Know.
'Bury this man there.'

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And in your Near West, as recently as 1927, a French scholar published a *Short Grammar of Glozelian for Universal Use* !

Fortunately, as the years pass the antithesis I have mentioned has decreased and the violence is less. But it is latent and dangerous. In dealing with Greece in particular, scholars who are not archaeologists labour under illusions which the most junior archaeologist could dissipate in a few moments. Let me give an example. Early this year a learned and also scholarly archaeologist read a paper entitled *The Age of Illiteracy in Greece*. Many learned scholars have expressed great surprise that it should even be suggested that there ever had been illiteracy in Greece. They had, wrapped up as they were in their texts and their history, imagined that the Greek race had always known how to write, that it arrived in Greece literate and equipped with the vehicle of writing. They never stopped to ask the question: 'When did the Greeks arrive in Greece? when did they begin to write?' And it came as a surprise to many of them to realize that the archaeologists really knew what happened—that the Greek-speaking peoples arrived in Greece about 2000 B.C., that they were completely illiterate until about 1500, when they had offered to them a mode of writing; that they resumed their illiteracy at 1200 and remained as solidly illiterate as ever for another five hundred years until about 750.

As to who they were, only one, Professor Myres, the perfect example of a true combination of scholarship and archaeology, has asked the question. And he concluded his book on page 638 before he had found occasion to give an answer to the query on his title page.

And so I come to my first point. There is in Near Eastern archaeology a gulf between the traditional scholar-historian, who studies the literary sources and excavates to prove his points, and the archaeologist pure and simple (if, indeed, archaeologists are ever either) who merely says 'This or that area, this or that period needs badly illustrating by means of objects found beneath the surface of the soil.' Let me illustrate the wideness of that gulf by the incredible and sterile controversy, as old as Strabo, which is at this very moment revived by M. Vellay. This French savant, typical of the Frenchman who emerges from his study only at rare intervals to misinterpret the evidence of archaeologists, a well-known type, actually maintains that Hissarlik is not the site of Troy. His arguments are of the usual geographical, textual and topographical kind that carry no conviction and admit of no refutation. On the

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other hand, Professor Blegen, sitting firmly on the site of Hissarlik, has found in the level called VIIA traces of overcrowding and overbuilding that indicate overpopulation, which in turn indicates a possible siege: he has found clear evidence of sack and destruction about 1200 B.C., actual skeletons of the defenders slaughtered in the narrow streets by the south gate, and is completely satisfied as an archaeologist not only that Hissarlik is Troy, but that Troy was sacked almost at the date assigned in tradition to that event. He finds that all the alternative sites have nothing of the continuity required for the citadel of Troy, while Hissarlik lasts as a walled citadel for over three thousand years.

The hard-worked archaeologist can hardly do more! M. Vellay and his kin must simply be brushed aside as irrelevant, if not ridiculous. They cumber the earth and interfere with legitimate work. But I quote this instance to show that the type that opposed Schliemann is still active and evident. They correspond to the type, now happily extinct, in Near Western archaeology, who maintain that if the archaeologist cannot find proof of Phoenician trade with Britain then the archaeologist is dangerous and useless.

But do not forget that the excavator as such deserves on occasions as firm criticism as the scholar. All too often he thinks that his stratificational facts are beyond criticism. Yet often—and this is true of the Near East in a way in which it is rarely true of the West—one can get a firm check on his stratification by the evidence of style-development. The hundredweights of sherds that are the reward even of the smallest excavation on a Greek site, of the full Bronze Age or, say, the period 750–400, and the really immense knowledge among experts of the course of development of Greek ceramic design, makes it possible for style as such to be studied intensively. And if the style-sequence (as, say, in Proto-Corinthian and Corinthian, or in B.F. Attic, or in Dipylon wares) goes contrary to the evidence of stratification, then the excavator must be asked to re-excavate, rather than the stylistic expert to reconsider his style. For funny things can happen in the soil that pass all understanding. Above all, never let the excavator attempt to apply what he may call the ‘Law of the Single Sherd.’ The sad case of the date of the Treasury of Atreus and the confusion that has resulted, is proof enough of the folly of arguing from inadequate excavational data. A more recent case has occurred in the controversy now raging in America as to the date of the introduction of the Greek alphabet. I shall have occasion to refer to this again.

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So as we award our kicks and bludgeon blows, let us, while reserving the bulk for the study-scholar, permit ourselves a few in reserve for the excavator. *Hubris* of any sort is out of place in archaeology. There is much of it about. But the pure scholar, whose work no one would for a moment attempt to deprecate, even to-day insists at times on poaching into areas where he is not only not competent but actually incompetent. I need hardly instance the utterly sterile controversy on the identity of Ithaka, which, like that on the site of Troy, has raged for years. True, it was stimulated by Doerpfeld's discoveries, but it certainly fell more into the hands of the traditional scholars than into those of the archaeologists. However, Ithaka has now been dug. Facts are forthcoming; common sense is again in control.

But let me rather list for you the grave problems that still await solution and the vast regions of vital territory wherein lie buried the solutions of so much that is still ambiguous. I will start at the beginning.

You to whom the Neolithic Period of the Near West is like an open and neatly published book, have little idea how little we really know in the Near East of that remote period. The moment an archaeologist in Greece or Asia Minor or in the islands strikes those deep levels and finds to his alarm that the record of human habitation still continues, he murmurs with bated breath the fatal word 'Neolithic,' and his breath is bated because he knows that he has reached the Stygian darkness and the 'dank House of Hades.' He is lost in a dim half-world where only wraiths of men outworn roam and twitter in the gloom.

In the Near East we know of the Neolithic only in rare patches. There is Neolithic Thessaly. Thessalians were apparently intelligent enough to benefit archaeology by surviving as Neolithic folk well into a period when others had advanced. But below the levels of Helladic Greece have been found, first with alarm and later with surprise, a uniform culture with splendid polychrome wares which indicate some kind of uniformity at least in the Greek peninsula.

Elsewhere is a mere patchwork. The probably Chalkolithic culture of the Strymon valley, where a most important French excavation near Philippi made in 1922 has never yet been published, produced a graphite-painted ware the relations of which were thought to be with Rumania. But Rumanian archaeologists¹ now deny this

¹ V. Dumitrescu, *Liverpool Annals*, XXIV, p. 19, n. 5.

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and Bulgarian archaeologists can produce no satisfactory links. Thessaly, moreover, is separated from the Strymon valley by a solid block of Macedonian Neolithic which is *sui generis*. This, too, awaits full publication. The Dimini wares of Thessaly do not, therefore, join up with the Strymon culture and Rumania and Bulgaria, and, however close the relation between these places may appear, throw no light on the Greek situation. Now to confuse matters still further a complete culture of Neolithic Age has been discovered in Cyprus and just now published by M. Dikaïos. Many years of intensive research by the Swedish Expedition and a previous generation of excavation had given virtually no hint of its extent and but little of its existence. As recently as 1914 it was stated that Cyprus had no Neolithic history. Now the Neolithic culture is seen to embrace everything from a purely stone-using phase to one in which the most elaborate white-slip pottery, decorated with fine paint and artistic design, continues for a long age, but exhibits absolutely none of the ceramic characteristics which we have been led to consider as peculiarly Cypriot from a study of the Cypriot Bronze Age. Shapes, technique, and paint differ radically in Neolithic Cyprus from anything of the Bronze Age, even though the Neolithic culture slips into a Chalkolithic. Apparently there was a complete change of culture in Cyprus. The only analogies for this new pottery are with Cilicia where it seems that Professor Garstang has found wares that resemble the Cypriot, and with a few sites in Asia Minor. The closest resemblances are, alas, with Thessaly, with whom no conceivable link can otherwise be established except by the most imaginative.

Elsewhere the Neolithic exhibits the same erratic nature. It defies a true attribution of its origin. At Cnossos it was a long-lived culture and produced wares which are unpainted, incised, rough, and similar in appearance only to those of south-west Europe and Anatolia. In the Greek islands elsewhere the Neolithic fails, and at Troy it is non-existent. Troy I is firmly metal-using and can only be described as essentially Trojan!

Here indeed is a sphere for combined and continuous research. The Neolithic age of Greece and the Near East resembles a page from a stamp album with half a dozen stamps and a hundred blanks and the names of the places of issue not stated. Frankly it is chaos.¹

¹ The only safe generalization on the Neolithic period is that there was a cultural break between it and the Early Bronze Age. See Blegen, *Prosymna*, p. 22.

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For the Bronze Age Near-Eastern archaeologists pride themselves on their well co-ordinated work. This is in the main true. Up to about 2000 we have a uniform culture of Eastern origin which comprises Anatolia, the islands, the North Aegean, and the eastern side of Greece. Then we come to the great turning-point in Greek prehistory—the arrival of the Greeks. Almost all prehistorians in the Aegean are agreed that a perfect equation can be made by the philological, the archaeological, and the legendary or quasi-historical evidence. The earliest dialect stratum in the Homeric poems is Ionic. Philologists on wholly independent grounds believe that the Greek language must have been first spoken in the Greek peninsula between 2000 and 1600 B.C.

Historians point to the fact that the Ionians in the best traditions were a tribe displaced in the heart of Greece by incoming Achaeans. They were pushed, as it were, on to the periphery. Much later they moved over to Asia in what are virtually historic times. But Ionian family trees and Ionian language are the oldest Greek things in Greece.

Archaeologists find an undisputed break in culture about 2000 B.C. It is defined by means of that very unsuitable term 'Minyan,' which identifies a perfectly distinct type of pottery first found at Orchomenos III and at Melos, at home in the first place, an export in the second. Vast masses of evidence have now accumulated to show that this very distinctive pottery marks a large intrusion into the body of Central Greece. It is datable accurately by external contacts with Helladic, Minoan, and Trojan wares. Here is the counterpart in archaeology of the other evidence. And so with the Ionian-speaking Greek we are forced to equate Minyan pottery and the other equipment of Minyan life.

That indeed is a triumph of well-co-ordinated evidence. But there the story stops. When we search for our Minyans we are lost in mist. They are in Greece, but where did they come from? Can we use them to solve some of the larger problems of the Indo-European dispersal? So far these attempts have foundered. We find Minyan pottery in Phokis and in large quantities in Troy. The latest excavations at Troy have reinforced the fundamental Trojan affinities of the ware. But what is the link between these two widely separated areas? Was there a common source for both, or is Troy or Phokis the home of these pottery-makers? Mr. Heurtley wisely set out to look in the intermediate area and found Minyan in Chalcidike. But farther north it is not found, except for one isolated

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sherd which I will not dare to mention further, which Hubert Schmidt once showed me, found at Cucuteni.¹ Wisely it was suppressed!

But here is a gallant story which has a noble ending and no beginning. It is a fairy story in which everyone lives happily and Hellenically ever afterwards, but of which we cannot start with 'Once upon a time——.' What a topic for combined research in which Jugoslavs, Rumanians, and Greeks combine their efforts. But until that blank area in Old Serbia, the highlands of Bulgaria, and the Danube valleys are further explored *with this particular problem in view*, we shall learn no more of Greeks and Indo-European origins. This indeed is a major problem that shouts for solution.

Let us proceed in our survey of Bronze Age needs. We will examine the Minoan. Surely, you will say, here is a neat island civilization, so clearly defined and divided, classified and excavated that it is a triumph of orderly archaeological precision. Perhaps that is so. But there are inevitable lacunae. Let us start with the plain questions that remain unanswered. Who were the Minoans? Were they merely the result of the impact of Nilotic influences on a gifted Neolithic Cretan stock? If so, why did that stock take so very long (several thousand years, says Evans) to exhibit its gifts? Was Minoan culture the result of a movement of peoples from Syria and Anatolia over to Crete, bringing with them the illumination of Sumer? Why, anyhow, is it that the Cretan Palace has no Cretan prototype and that Early Minoan pottery is not only Anatolian in feeling but shows almost no development from Cretan Neolithic? I think that Sir Leonard Woolley's excavations at Atchana have hit precisely on one of the missing links that will solve the problem and enable us to decide between the older Nilotic view and that based on the last twenty years' accumulation of knowledge from Mesopotamia and the intervening areas.² Anyhow, no one ever sprang fully armed from the head of Zeus except Athena. Acts of creation, like cephalogenesis, are not in the archaeologist's dictionary. So here is another problem.

Then there is a group of isolated archaeological facts of surprising interest that concern the period 1600–1400 B.C. They have remained isolated until the research of one man, M. Marinatos, seems to have correlated them together in one solid hypothesis. And the

¹ V. G. Childe, *The Danube in Prehistory*, p. 110.

² A recent paper states the case for the Mesopotamian connection. P. Demargne, *Crète-Egypte-Asie, perspectives d'hier et d'aujourd'hui*, École des hautes études. Gand. 1938.

hypothesis, by co-ordinated effort, may prove to be, as hypotheses do in the end, a true statement of what actually happened. Here are the facts:

1. The mighty Cretan palaces were overwhelmed by two great catastrophes, which did not end Minoan culture. One was that which occurred about 1600, at the end of the Middle Minoan period. The palaces of Cnossos, Phaestos, and Mallia were then ruined suddenly, but were rebuilt almost at once. The second catastrophe occurred towards the end of the period 1550-1500, in L.M.I. This time, not only palaces but establishments such as Aghia Triadha were ruined. Houses of nobles like Apodulu, Niru, Sklavokampos, Tyliossos and Amnisos round the countryside were also involved. Whole towns like Gournia, Pseira, Palaekastro, and Zakro were destroyed. Sacred caves like Arkhalochori fell in.

After the catastrophe Cnossos alone arose in glory and the whole nature of Minoan life became Cnossocentric—a Palace culture quite different from what preceded it. Obviously fundamental political changes had resulted.

2. Egyptian memorials record a people called Keftiu, once identified as Cretans, in the years 1516 (Senmut), *c.* 1500 (User-ammon and Puemra) 1471-1448 (Rekhmere). These Keftiu are now almost universally accepted as a Syro-Minoan people, not as true Cretans. How did they get to Syria and what made them go?

3. Between 1600 and 1500, as the Shaft Graves of Mycenae show, Minoan objects or influences were reaching mainland Greece in waves. They caused by their stimulating influence the native Greek peoples to develop with unheard-of speed the culture known to us as Mycenaean. But why did these Cretan influences go to the mainland? And were they merely trade influences or colonization? An irreconcilable controversy, more sterile and *per se* insoluble than most, has arisen. Evans states categorically colonization. Professor Wace as categorically “mere trade.” Each has his prejudices. The first is Cretocentric, the second Helladocentric. From such a controversy there is no outlet. We stick.

4. The last fact is this. The island of Santorin (Thera) is a volcano. In 1870 was first published an account of the Minoan remains found on the island buried beneath from thirty to one hundred feet of ash and pumice. There were houses, complete with furnishings, remains of seeds and fruits, indeed an almost Pompeian perfection. Since then from time to time other Minoan and Cycladic

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remains have been found. But no systematic excavation has ever been properly carried out in the island. The Minoan pottery is fine and typical of a time shortly before 1500.

Now M. Marinatos finds a singular coincidence of dates. Something rather widespread happened. He conceived the notion that the eruption which buried the Minoans of Santorin was the greatest eruption of all, the explosion that blew out the centre of the island. The more so since some of the Minoan remains were found on Therasia, now a fragment of the crater, then perhaps the side of the intact island. He studied carefully the only explosion of the kind known—that of Krakatoa in 1883. Here he found that Krakatoa was not so violent as Santorin. The bursting of Santorin was four times as violent as that of Krakatoa, so the geologists told him. Yet at Krakatoa, during the eruption, day was turned into night over an area 150 km. distant from the centre of disturbance. A tidal wave a hundred feet high hit the shores of lands within a circle of 100 km.

But Crete is only 110 km. from Santorin. All the main settlements are on the coast of Crete that face Santorin. And, finally, at Amnisos, near Candia, he found three feet of pumice stone as a deposit over the L.M.I. houses.

I cannot now hope to go into detail about this theory. But it is the first big comprehensive theory that explains all our outstanding difficulties at this period. Here is a magnificent opportunity for geologists, vulcanists, botanists, archaeologists and Egyptologists, historians and seismologists to co-operate. Actually M. Marinatos is working alone at the mass of material, impeded by the scepticism of many and the failure of most to realize the import of the theory. Santorin should be submitted to a large and comprehensive study. The facts are there. They can be found. An apple fell on the head of Newton. M. Marinatos tripped over some pumice stone.

Of the full Bronze Age we are as well informed as we could hope. But in the Mycenaean area one hopeless tangle awaits orderly solution. I refer to the paradox of the greatest of all Bronze Age architectural creations, the Tholos Tombs of Mycenaean Greece. They have been neatly arranged in an order of development from early and primitive to late and sophisticated. It is all too beautifully simple. But this arrangement, like many pure typologies, may stand on its head or its heels. The primitive may be decadent, the sophisticated the first creation of an age of invention and splendour. How can we tell? All attempts to date the tombs on internal evidence have proved

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abortive. We just have no datings for them. The great tomb of Atreus cannot be dated by the notorious one sherd found below its threshold. It can no more easily be dated by its dromos, which may be, and probably is, a later addition.

Let us move to the end of the Bronze Age. Here again is an age of uncertainty and mystification. We all talk glibly of the *Völkerwanderung* that, about 1200, destroyed the Hittite world, and a little later that of the Mycenaeans and brought the Bronze Age to a smoking and desolate collapse. But here are questions to answer:

1. What connection is there between the Achaean destruction of Troy, recorded in literature and archaeologically proved, and the movement of peoples across from Europe into Asia past Troy, for the attack on the Hittite world?

2. How far can the movements of Phrygians and other Indo-European tribes at this time (starting perhaps as early as 1300) be correlated with the Lausitz movements, of which we find traces in Macedonia and at Troy later on, about 1100? What European evidence is there for these migrations?

Aegean Bronze Age specialists have shut their eyes to everything outside the Aegean. They have no idea at all what the connections of Trojan and Mycenaean culture are with mainland Europe. Nor do they attempt to find out.

One key to this problem may be the Achaeans. They, like all other kinds of Greek tribes, resemble serpents whose heads we see and identify, but whose tails are lost in a marsh. Achaeans have an existence which is almost entirely literary or legendary. Personally I think none the worse of them for this. For their mention on the Hittite tablets of Boghaz Keui and the fact that they had a dialect distinct from and later than the Ionian, gives them an objectivity which is sufficient. But, archaeologically, they are as yet unidentified except perhaps as the wielders of the well-known Hungarian type of sword, Naue II. But it would be as hard to identify a tribe by its armaments as to make racial assertions to-day about European population by examining their bayonets. Armament firms even in the Bronze Age seem to have shown the nice impartial internationalism that they exhibit to-day.

Yet there are places where we might look for the Achaeans. One would be the lower Spartan plain in the Peloponnese, and the site of the city of Helos. Helots were the latest type of pre-Dorian

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Greeks enslaved by the most martial of Dorians. Let us look for their city. The other end of the Achaean serpent is to be sought far north. Rumanian archaeologists do not cease from emphasizing that their incredibly rich Bronze Age exhibits feudal qualities and modes of life exceedingly close to the Mycenaean-Achaean. Professor Vasile Parvan, who died ten years ago, was prominent among Rumanians in this thesis. But no Aegean archaeologist has taken the trouble to go and look.

Glancing at our map we find that there is a large belt of feebly explored country in the very region that holds the key. Of Dorians and the Early Iron Age and of the movements which displaced Dorians and sent them hurtling into Greece we now know much. We know that it was the Lausitz movement which propelled these peoples south. That is the result of patient excavations in the great Vardar plains of northern Greece. My own first attempts at excavation in 1920 were intended to open up this very field. I think they did so. Dorians are no more a complete enigma. But the Achaeans still maintain, archaeologically, a suspended animation. They escape us completely.¹

And so to the Dark Ages. A *frisson* of excited anticipation is invariably the response nowadays to this attractive term. I suppose it is always fashionable to like investigating periods that most resemble our own. So eighteenth-century Europe admired the Augustan Age.

In Greece the Dark Age is indeed one of the most interesting. If, as Mr. A. R. Burn has so wisely pointed out, a Heroic Age is an age in which barbarians are busily engaged in breaking up a culture higher than their own and in squandering in mutual conflict the accumulated wealth of an age of wisdom, then a Dark Age is apparently an age of convalescence. It certainly was in Greece. Men sat tight and collected the pieces left lying about by the heroes. They rebuilt their villages, like villagers after the last war, out of fragments of ruins. They recreated a sort of spiritual life out of the spiritual petrol tins and corrugated iron sheets found amid the chaos. Christianity in our own Dark Ages was one of these relics. Greece never found a religion, and the early arrival of Homer on the scene, the first Greek sceptic, was sufficient to put a ban on magicians and wonder-workers. For the Greek mind quickly seized on essentials. It had a long and noble ancestry from the Bronze Age.

¹ A recent attempt to give them an archaeological content is to be found in the Swedish publication of *Asine*, 1938, p. 434.

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On the whole, our Greek Dark Age is known and excavated. The Dark Age in all the Near East is well documented by those peoples like the Egyptians and Mesopotamians who had none of their own, and were able to watch it from quite near.

But the literary experts have done their best to make things difficult. Let me present to you the problem of the origin of writing in Greece as one of the difficulties which they have bequeathed to us.

I spoke earlier of the matter. The linguistic and philological experts of all lands neglected to ask this fundamental question simply because they did not know the answer to it. A sublime vagueness enshrouded the whole affair. Let me illustrate this. Eduard Meyer set the date for the adoption of the Greek alphabet from Phoenician at 900. Kirchoff, the great epigraphist, chose the same date. Beloch decided on the tenth or ninth century. The Cambridge Ancient History agrees on 'before 900.' Pauly Wissowa selects the tenth, Larfeld the eleventh, and the *Encyclopaedia Britannica* goes back to the fourteenth-fifteenth century, despite the fact that there was then a perfectly good Minoan script in use. The Semitic experts choose the second millennium. All these facts Rhys Carpenter has pointed out.¹

This is an astonishing situation in which the scholars find themselves stuck, one which even archaeologists, who are always taunted with the generosity with which they throw the centuries about, may well gasp at.

And so the archaeologists are left to solve it. And solve it they can. The best way is to look for the earliest datable inscriptions in Greek. This simple search reveals that no extant Greek inscription can yet be made to antedate 750, even by a few years. The controversy has thinned itself down to the period 750-700, with a tendency to lower rather than raise the date. Certain inscribed Greek geometric vases and fragments are our earliest known evidence.

Only in Cyprus can it be said that literacy never died out between about 1350 and 700. The Cypriot or Cypro-Mycenaean script carried the literate through the dark age and overlapped with the newly acquired Greek script, as you know. Archaeology has given us all the evidence for this that we have. But the evidence, even so, is exiguous, and attempts to translate any Cypriot Bronze Age inscription at all are wholly premature. Such attempts as have

¹ *American Journal of Archaeology*, 1933, p. 7.

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been made¹ need only a cursory glance to illustrate their failure. The craze for translating unknown scripts should attend upon the acquisition of sufficient material. Children are taught the alphabet before being taught to read. Let us collect the Cypriot syllabary before we preach sermons in it. But the scholars always tend to force the pace.

I come again to our map. I have always been appalled by the extent of the *terra incognita*. Take the Black Sea alone. Nothing at all is known about its southern coasts, or its eastern coast, and little enough about the western side. How many of our major problems of movements of peoples from the Neolithic to the Iron Age can be solved here!

We are often told of the great trade that came in and out of the Dardanelles in the Bronze Age, of which the Argonauts are the sole legendary mention. No one has ever been to the Black Sea coasts to investigate.

Turning to the Classical Age proper, I am always astonished to realize that virtually no Greek colony has ever been excavated right down to its foundations. Indeed, hardly any Greek colony has ever been excavated at all. Selinus in Sicily is perhaps the only example. But even that has given us no evidence as to its earliest phases and its pre-colony existence. For Greeks rarely settled on uninhabited places. The best excavation of the kind is that of the remote colony of Istros or Histria. The remoter the better, for then one can the more easily detect the Greek and differentiate the Greek from the local influences. Callatis and Tomi in Rumania have also been excellently explored. But they are bad sites. Further south the whole Bulgarian and Turkish coastline is a closed book. Yet in Bulgaria the site of Apollonia Pontica provides one of the greatest Greek colonial cities in the ancient world. Odd finds of great artistic value have come from Sozopolis, its modern equivalent. Yet no archaeologist has excavated. Bulgaria has a thriving and vigorous Institute of Archaeology. But they have no money. Here is a major key-site.

Finally, if art alone be our goal—and what archaeologist does not revel in extracting from the reluctant soil the finest works of art—there is a project once outlined to me by our Chairman, namely the submarine examination of those places along the shores of Greece where

¹ The Asine inscription (Professor Persson) and the Eleusis inscription (Dr. Mylonas).

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ships containing cargoes of statues may lie buried in the sand. The finds of Cape Artemisium, Antikythera, the African coast and Marathon Bay have given to museums some of the finest works of art in the world. But all have been found solely by curious fishermen. Let the archaeologist take a holiday and also become a curious fisherman, equipped with aeroplane, diver, drag, and dredger. Expensive, but in the long run archaeologically profitable. Not science perhaps, but art combined with sport.

Subscribing Membership

AS mentioned in the Financial Report, it was felt at the beginning of the Session 1937-8 that sufficient interest had been shown in the Institute for a scheme of Membership to be started. By this, people to whom the work of the Institute appeals, but who are not able to contribute to the Capital Endowment, are enabled to help in a smaller but nevertheless effective way. The minimum subscription is a guinea per annum, but larger sums will be most welcome. The arrangements for Life Membership, depending on the age of the member, can be obtained from the Secretary. A covenant to subscribe for seven years will enable the Institute to recover Income Tax on this amount, and the Committee would be most grateful if subscribers would be willing to do this. Payment by Banker's Order, also, is of assistance to the administration.

In return for their subscriptions, members are entitled to certain benefits. The principal ones already arranged are as follows:

1. Notices of all lectures, exhibitions, etc., at the Institute.
2. The Institute's Annual Report, which includes a statement of work done and in immediate contemplation, and the text of certain of the lectures given at the Institute, and other suitable archaeological matter.
3. Occasional Papers, by Members of the staff or students, on subjects for which there is not already a suitable medium of publication. These will include monographs on particular classes of archaeological objects, descriptions of objects and groups in the Institute's collections, geochronological tables, and descriptions of different types of archaeological method and technique.
4. Use of the Institute's library, photographic collections, and collections of archaeological objects.
5. A reduction of 25 per cent on the fees of those courses of lectures for which a fee is charged.

SUBSCRIBING MEMBERSHIP

6. Answers to queries on matters concerning the various Departments. Many enquiries are received, particularly by the Repair Laboratory and the Geochronological Department, and it is impossible to answer these from the general public. Every effort is made to answer those received from members, and reduced fees are charged for any work, for instance analysis, which is required.

These services are already available to members. Every effort, however, is being made to supply all urgent archaeological needs, and any further suggestions as to how the Institute may be of use to its members will be most welcome.

Tessa Verney Wheeler Memorial Bursary

IN accordance with the wishes of the majority of subscribers, it was decided that the fund collected in memory of Tessa Verney Wheeler should be devoted, after the provision of the tablet in the Library of the Institute, to the establishment of a bursary for the assistance of archaeological students. The capital, amounting to £569, has been invested in the name of the Society of Antiquaries of London, and the interest will be devoted to this object. The administration is in the hands of a committee appointed partly by the Society of Antiquaries and partly by the Institute of Archaeology. The object of the bursary is to give assistance to students in archaeological studies in any way which may appear most useful to the committee. It may, for instance, be given for travel for the purpose of research, for the purchase of books and equipment, or for assistance in living expenses during excavations or while pursuing a course of study. The bursary may be divided among a number of students, or given to one only, or it may not be awarded at all in a particular year, if there is not a suitable candidate.

It is realized that the amount available is not large, but it is felt that even small grants will often make a great deal of difference to some students. Everyone would agree that the use of the fund in this way would have been in accordance with Mrs. Wheeler's wishes, and it is hoped that once a fund such as this has been started, it may form a nucleus to which additions may from time to time be made.

Teachers or field-workers who hear of suitable candidates should apply to the Secretary of The Society of Antiquaries, Burlington House, W.1.